

Power efficiency for a cooler planet

2023 WeEn Semiconductors

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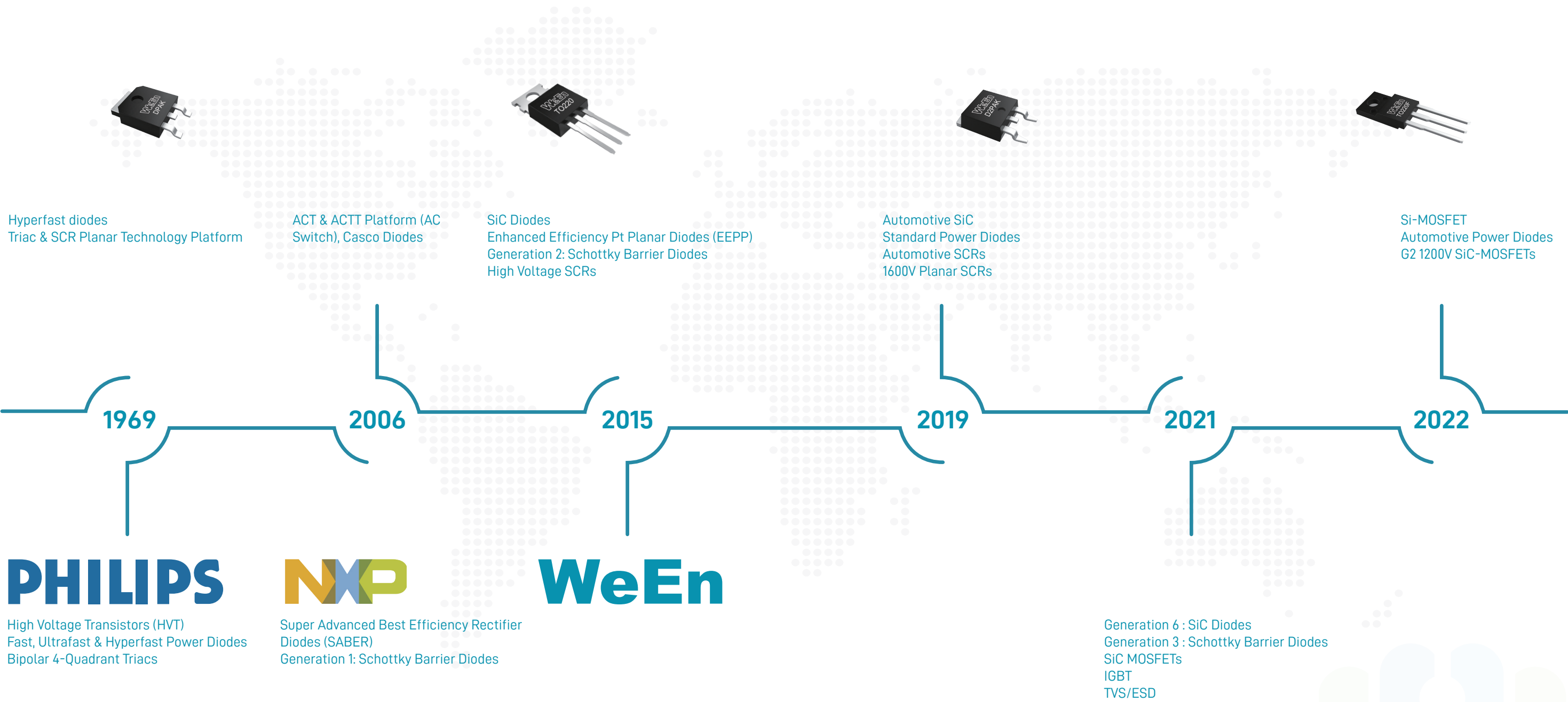
website: www.ween-semi.com



WeEn Semiconductors

PRODUCT SELECTION GUIDE

WeEn Semiconductors spun off from NXP; over 50 years' leading experience in the power segment



WeEn Company Introduction

WeEn Semiconductors Co., Ltd was registered as a company on Aug 5, 2015.

WeEn's global footprint has an operational headquarters in Shanghai and wholly owned subsidiaries and centers in Jilin & Hong-kong, northeast China (Front-End Fabrication) Shanghai and Manchester, UK (Research & Development), Dongguan(Warehouse and Distribution), and cities throughout the world (Sales Offices and Customer Service Access).

In September 2018, WeEn added its new, in-house, reliability and failure analysis laboratory in Nanchang, Jiangxi province, China. In the beginning of 2023, WeEn launched its Power Module plant, located in Shanghai, China, where advanced Bipolar Modules, IGBT Modules and SiC Power Modules can be produced.

With a heritage of over 50 years in semiconductor development and manufacturing, WeEn as a key player has focused on developing a wide and deep portfolio of industry-leading power products including Silicon Carbide Power Devices, Silicon Controlled Rectifiers and Triacs, standard and fast recovery Power Diodes, TVS and ESD protection Devices and IGBTs and modules.

All these products are widely used in the markets for telecommunications, computers, consumer electronics, intelligent home appliances, lighting, automotive and power management applications. WeEn seeks to help our customers achieve improved cost and production efficiency and contribute to the development of global intelligent manufacturing.

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01
Thyristors

AC THYRISTOR TRIACS

AC THYRISTORS

TEMPERATURE AND OVERLOAD PROTECTED TRIACS
(TOPTriac)

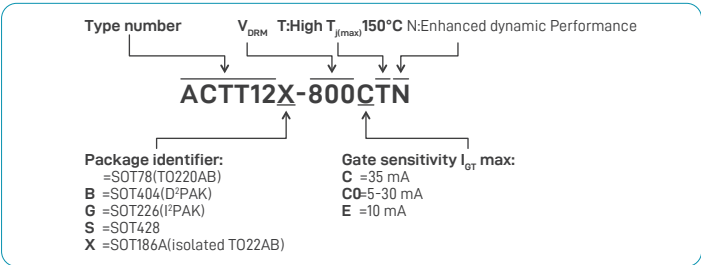
SILICON CONTROLLED RECTIFIERS
(0.8A - 126A)

SILICON CONTROLLED RECTIFIER POWER MODULE
(2 x 182A)

FOUR-QUADRANT TRIACS
(0.6A - 45A)

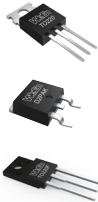
THREE-QUADRANT Hi-Com TRIACS
(0.8A - 45A)

AC Thyristor Triacs part numbering

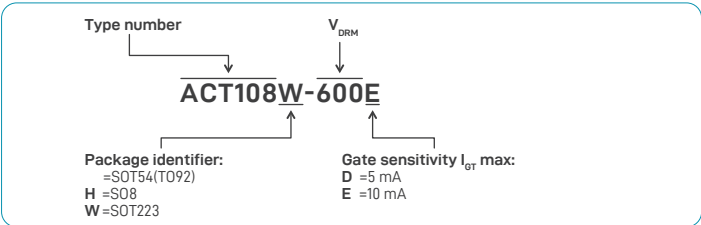


In the spotlight

- AC Thyristor Triacs ACTT10 series, ACTT12 series**
- Planar passivated with overvoltage clamping function
 - High energy surge handling
 - Very high dV_G/dt for maximum immunity to false triggering
 - High $T_j(max)$ to 150°C



AC Thyristors part numbering



In the spotlight

- AC Thyristors ACT108-800E, ACT108W-800E**
- Planar passivated with overvoltage clamping function
 - Working voltage increased to 800V
 - Enhanced overvoltage clamping capability
 - High false trigger immunity



In the spotlight

- TOPTriac TOPT12, TOPT16**
- Planar passivated for voltage ruggedness & reliability
 - Over temperature & over load protection
 - No need to over-specify triac and heatsink
 - Avoid loss of control at high temperature
 - Status monitoring with help of microcontroller



AC THYRISTOR TRIACS

3Q Hi-Com power switches, overvoltage protection

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development
N: enhanced Noise immunity T: high $T_{j(max)}$ 150°C

I_{GT} key:
C 35mA
C0 5-30mA
E 10mA

$I_{T(RMS)}$ (A)	V_{DRM} (V)	$I_{GT}(max)$ (mA)	TO220	TO220F (SOT186A)	SOT223	TO262 (I ² PAK)	TO263 (D ² PAK)	TO252 (DPAK)
2	800	E		ACTT2X	ACTT2W			ACTT2S
4	800	ETN		ACTT2X				ACTT2S
6	800	C/E		ACTT4X				ACTT4S
6	800	E	ACTT6	ACTT6X				
6	800	CN	ACTT6	ACTT6X		ACTT6G	ACTT6B	ACTT6B
8	800	C0/C0T	ACTT8	ACTT8X			ACTT8B	
8	800	CTN	ACTT8	ACTT8X			ACTT8B	
10	800	C/CT	ACTT10	ACTT10X				
10	800	CTN	ACTT10	ACTT10X			ACTT10B	
12	800	C/CT	ACTT12	ACTT12X			ACTT12B	
12	800	CTN	ACTT12	ACTT12X			ACTT12B	ACTT12S
16	800	CTN	ACTT16	ACTT16X			ACTT16B	

AC THYRISTORS

2Q Hi-Com power switches, exclusive negative gate triggering, common' mounting base, overvoltage protection

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

I_{GT} key:
D 5mA
E 10mA

$I_{T(RMS)}$ (A)	V_{DRM} (V)	$I_{GT}(max)$ (mA)	TO92	SOT223	S08
0.2	600	D			ACT102H
0.8	600	D/E	ACT108	ACT108W	
	800	E	ACT108	ACT108W	

TEMPERATURE AND OVERLOAD PROTECTED TRIACS (TOPTriac)

2Q Hi-Com power switches, exclusive negative gate triggering, over-temperature protection

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

I_{GT} key:
C0 5-35mA

$I_{T(RMS)}$ (A)	V_{DRM} (V)	$I_{GT}(max)$ (mA)	TO220	TO263
12	800	C0	TOPT12	
16	800	C0	TOPT16	TOPT16B

SILICON CONTROLLED RECTIFIERS

0.8A - 126A

Types in **bold blue** represent new products

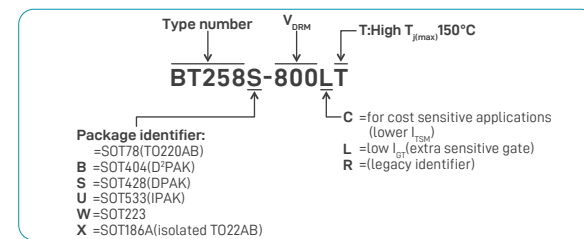
Types in ***bold red italic*** represent products in development

A: Automotive qualified AEC-Q101 F: Fast switching L: Low I_{GT} version

N: enhanced Noise immunity T: high T_{jmax} 150°C

* High I_{TSM}

Silicon Controlled Rectifiers part numbering



In the spotlight

High Voltage, high surge capability

SCR BT155 series, BT158, TYN60

Planar passivated for voltage ruggedness and reliability

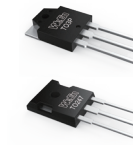
Very low on-state voltage (V_T) contributes

to best efficiency in AC-DC conversion

High junction operating temperature

capability (T_{jmax} 150°C)

Less sensitive gate for high noise immunity



SILICON CONTROLLED RECTIFIER

POWER MODULE

2x182A

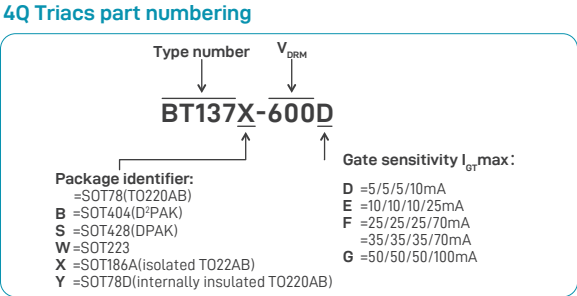
$I_{T(RMS)}$ (A)	$I_{T(AV)}$ (A)	V_{DRM} & V_{RRM} (V)	$I_{GT(max)}$ (mA)	WMT01 (TO240AA)
2 x 182A	2 x 116A	1600	30-80	WTMH116T16

[illegible]

FOUR-QUADRANT TRIACS

0.6A - 45A

Types in **bold blue** represent new products
Types in ***bold red italic*** represent products in development
T: high T_{max} 150°C * High I_{TSM} ** Enhanced immunity to false triggering



In the spotlight

4Q Triacs Z010***0 series

- Planar passivated for voltage ruggedness and reliability
- Improved dynamic performance over Z010***series
- Best false trigger immunity for sensitive 4Q triacs



key:	
B	50mA (70mA in 3+)
D	5mA (10mA in 3+)
E	10mA (25mA in 3+)
F	25mA (70mA in 3+)
-	35mA (70mA in 3+)
G	50mA (100mA in 3+)
G0	50mA (100mA in 3+), 10mA min

I _{T(RMS)} (A)	V _{DRM} (V)	I _{GT(max)} (mA)	T092	T0220	IIT0220 (internally insulated)	SOT82	T0220F (SOT186A)	T0223	T0263 (D ² PAK)	T0252 (DPAK)	IIT03P (internally insulated)
											
0.6	400	5/5/5/7	MAC97A6								
	600	5/5/5/7	MAC97A8								
1	600	3/3/3/7						BT131W			
	600 / 800	3/3/3/7	BT131								
		5/5/5/7	BT131-D								
		10/10/10/10	BT131-E								
		3/3/3/5	Z0103MA/NA					Z0103MN/NN			
		5/5/5/7	Z0107MA/NA					Z0107MN/NN			
		10/10/10/10	Z0109MA/NA					Z0109MN/NN			
		3/3/3/5	Z0103MA0/NA0**					Z0103MN0/NN0**			
		5/5/5/7	Z0107MA0/NA0**					Z0107MN0/NN0**			
	10/10/10/10	Z0109MA0/NA0**					Z0109MN0/NN0**				
600	5/5/5/10	BT132-D*									
2	D/E/-							BT134W*			
	800	-						BT134W*			
4	800	E						BT134W*			
	600	D/E/-/G				BT134					
	800	E/-				BT134					
	600 / 800	D/E		BT234*			BT234X*				
	600	D/-		BT136			BT136X			BT136S	
	F						BT136X			BT136S	
6	600 / 800	E		BT136			BT136X		BT136B	BT136S	
	800	D								BT136S	
		F								BT136S	
		-						BT136X			BT136S
6	600	F/-/G					BT236X				
	800	-/G					BT236X				
8	600	D/-/G		BT137			BT137X			BT137S	
		E		BT137			BT137X		BT137B	BT137S	
		F					BT137X		BT137B	BT137S	
	600 / 800	G0/G0T		BT137						BT137S	
	E		BT137			BT137X			BT137S		
	800	F							BT137B	BT137S	
12	600	-		BT137			BT137X		BT137B	BT137S	
		G									
		D		BT138			BT138X				
	-/G		BT138			BT138X			BT138B		
	600 / 800	F					BT138X		BT138B		
	G0/G0T		BT138								
	800	E		BT138	BT138Y		BT138X		BT138B		
	F					BT138X					
	-		BT138			BT138X					
	G		BT138								
16	600	E/-		BT139			BT139X		BT139B		
		F/G					BT139X		BT139B		
		G0/G0T		BT139							
	600 / 800	B			BTA16						
	E		BT139					BT139B			
	800	F						BT139B			
20	600	-		BT139			BT139X		BT139B		
	800	G		BT139					BT139B		
25	600	50/50/50/75					MAC223A8X				
	400	50/50/50/75		MAC223A6							
40	600	G0/G0T		BTA140							
	600 / 800	-		BTA140							
45	600 / 800	B									BTA41
	800	B									BTA45

THREE-QUADRANT Hi-Com TRIACS

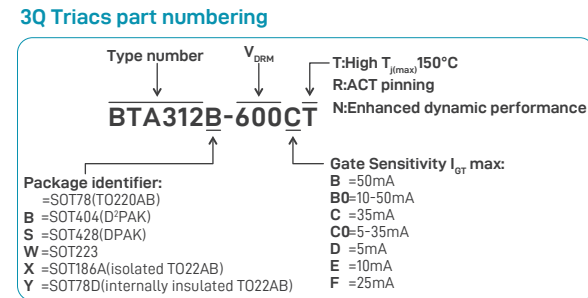
0.8A - 45A

Types in **bold blue** represent new products

Types in ***bold red italic*** represent products in development

R: ACT pinning T: high T_{max} 150°C N: enhanced dynamic performance

* High I_{TSM}



In the spotlight

3Q Hi-Com Triacs BTA425, BTA330, BTA440, BTA445

Planar passivated for voltage ruggedness and reliability

High junction operating temperature capability (150 °C)

Less sensitive gate for high noise immunity

High commutation, high dV_o/dt for maximum immunity to false triggering



I _{GT} key:	
B	50mA
B0	10-50mA
C	35mA
C0	5-35mA
D	5mA
E	10mA
F	25mA
F0	5-20mA

I _{T(RMS)} (A)	V _{DRM} (V)	I _{GT} (max) (mA)	T092	T0220	IIT0220 (internally insulated)	T0220F (SOT186A)	SOT223	T0262 (I ² PAK)	T0263 (D ² PAK)	T0252 (DPAK)	IIT03P (internally insulated)
											
0.8	600 / 800	D	BTA2008				BTA2008W				
	D/E										
1	1000	D	BTA2008								
		DN	BTA2008								
	600 / 800	B/E/ER	BTA201								
	800	E					BTA201W				
2	600 / 800	B/C/D/E/F					BTA204W*				
	800	C/E					BTA204W*				
3	600 / 800	D/E				BTA202X					
	800	ET					BTA202W				
4	1000	CT/ET	BTA202			BTA202X	BTA202W				
		CT	BTA203								
6	800	ET	BTA203								
	600	B/C/D/E/F		BTA204		BTA204X				BTA204S	
8	800	B/C/E		BTA204		BTA204X				BTA204S	
	1000	C				BTA204X				BTA204S	
10	600 / 800	CT/ET		BTA206		BTA206X					
	600	D		BTA208		BTA208X				BTA208S	
12	600 / 800	B/E/F		BTA208		BTA208X				BTA208S	
		CT				BTA208X					
14	800	B0/C0				BTA208X					
		C0T			BTA308Y						
16	800	ET		BTA308	BTA308Y	BTA308X				BTA308S	
		F0				BTA308X					
18	1000	B				BTA208X					
		C				BTA208X			BTA208B		
20	600 / 800	C0				BTA208X					
		C0T				BTA408X*					
22	600 / 800	C/D/E		BTA310		BTA310X					
		BT/CT/ET		BTA410*	BTA410Y*	BTA410X*					
24	600	CT		BTA312		BTA312X		BTA312G	BTA312B		
		D		BTA312		BTA312X			BTA312B		
26	600 / 800	B/C/E		BTA312		BTA312X			BTA312B		
		C			BTA312Y						
28	800	B/C			BTA412Y*						
		ET			BTA412Y*						
30	600	CT		BTA312		BTA312X			BTA312B		
		ET		BTA316					BTA316B		
32	600	B0		BTA316					BTA316B		
		CT									
34	600 / 800	D		BTA316		BTA316X			BTA316B		
		B/C/E		BTA316							
36	800	ET		BTA316							
		B/C			BTA416Y*						
38	600	B0		BTA316		BTA316X					
		BT/CT			BTA316Y						
40	800	CT		BTA316		BTA316X					
		BT/CT				BTA416X*					
42	800	BT/CT		BTA420*	BTA420Y*	BTA420X*					
	600	BT		BTA225							
44	600 / 800	B		BTA225					BTA225B		
		BT							BTA225B		
46	800	BT/CT			BTA425Y*						BTA425Z*
		B/BT									
30	800	BT		BTA330		BTA425X*					
40	800	BT/CT			BTA330Y	BTA330X			BTA330B		
45	800	BT									BTA440Z*
	800	BT									BTA445Z



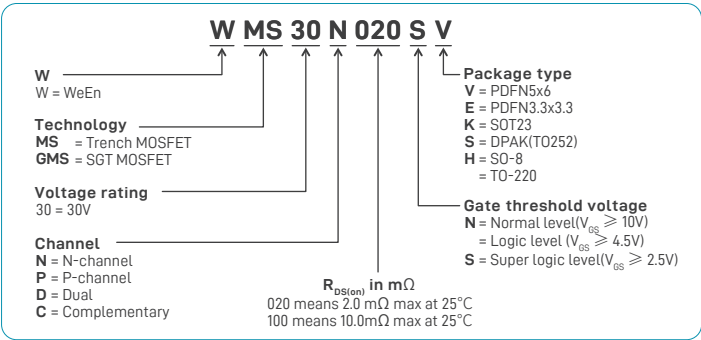
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02
MOSFETs

LV MOSFETs
(20V / 30V)

HV MOSFETs
(600V / 650V)

LV / MV MOSFETs part numbering



In the spotlight

LV MOSFETs

Advanced high cell density trench technology

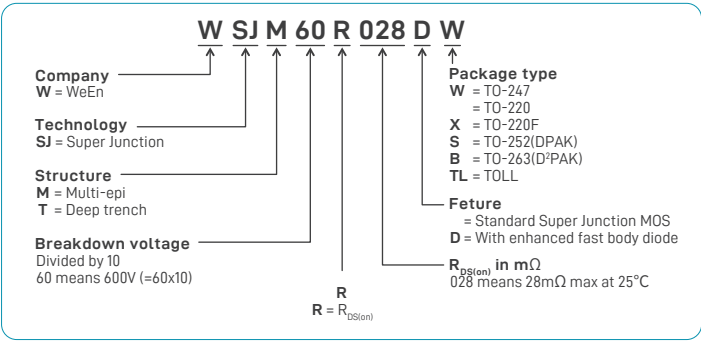
Superior FOM $R_{DS(on)} \cdot Q_g$

Optimized gate charge to minimize driver losses

100% avalanche tested



HV MOSFETs Part numbering



In the spotlight

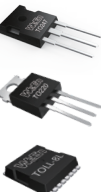
Super Junction MOSFETs

Superior FOM $R_{DS(on)} \cdot Q_g$

Extremely low switching loss

Integrated Ultrafast Body Diode available

100% avalanche tested



LV MOSFETs

20V / 30V Portfolio

Types in **bold blue** represent new products

Types in **bold red italic** represent products in development

Package	Config.	V _{DS} (V)	V _{GS} (±V)	Product name	R _{DS(on)} (max)(mΩ)			I _D @ 25°C (A)
					@ V _{GS} = 10V	@ V _{GS} = 4.5V	@ V _{GS} = 2.5V	
PDFN5x6 (SuperS08 equiv.)	N	30	20	WMS30N020V	2	3.3	-	150
				WMS30N034V	3.4	6	-	118
				WMS30N045V	4.5	7	-	81
				WMS30N050V	5	8	-	71
				WMS30N085V	8.5	15	-	41
PDFN3.3x3.3	N	30	20	WMS30N045E	4.5	7	-	67
				WMS30N050E	5	8	-	62
				WMS30N085E	8.5	15	-	40
				WMS30N140E	14	21	-	30
				WMS30N250E	25	35	-	19
	P	20	12	WMS30N300SE	-	30	45	17
				WMS20N270SE	-	27	44	18
		30	20	WMS30P230E	23	-	-	-
				WMS30N020S	2	3.3	-	159
				WMS30N034S	3.4	6	-	105
TO252(DPAK)	N	30	20	WMS30N045S	4.5	7	-	94
				WMS30N050S	5	8	-	87
				WMS30N250K	25	35	-	5.9
				WMS30N420K	42	65	-	4.5
				WMS30N300SK	-	30	45	5.4
	N	30	12	WMS30N500SK	-	50	65	4.2
				WMS30N950SK	-	95	-	-
				WMS20N270SK	-	27	44	6
		20	10	WMS20N300SK	-	30	45	5.4
				WMS20N500SK	-	50	65	4.2
SOT23	N	30	20	WMS20N700SK	-	70	100	3.5
				WMS30P550K	55	-	-	-
				WMS20P420SK	-	42	-	-
				WMS30N045H	4.5	7	-	-
				WMS30N140H	14	21	-	-
SO8	N+N	30	20	WMS30D140H	14	21	-	-
				WMS30N020	2	3.3	-	-
TO220	N	30	20	WMS30N045	4.5	7	-	-

HV MOSFETs

Super Junction MOSFETs

Types in **bold blue** represent new products

Types in **bold red italic** represent products in development

Package		V _{DS} (V)	R _{DS(ON)} (max)(mΩ)	Product name	Feature	Technology	I _D @ 25°C (A)
			@ V _{GS} = 10V				
TO247		600	28	WSJT60R028DW	with FRD	super junction	80
			44	WSJM65R044DW	with FRD	super junction	60
		650	44	WSJM65R044W	-	super junction	60
			75	WSJT65R075DW	with FRD	super junction	45
			99	WSJM65R099DW	with FRD	super junction	30
TO220		650	99	WSJM65R099D	with FRD	super junction	30
TO220F		650	99	WSJM65R099DX	with FRD	super junction	30
TO263(D ² PAK)		650	99	WSJM65R099DB	with FRD	super junction	30
TOLL		650	99	WSJM65R099DTL	with FRD	super junction	30



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WeEn Semiconductors

03

Power Diodes

SCHOTTKY RECTIFIER

LOW VF BRIDGE

3-PHASE BRIDGE RECTIFIER

CASCO DIODES

HYBRID DIODES (FRD+STD DIODES)

AUTO POWER DIODES

ULTRAFAST POWER DIODES

600V HYPERFAST POWER DIODES

1200V HYPERFAST POWER DIODES

STANDARD RECTIFIER

SCHOTTKY RECTIFIER
Power schottky diodes for SMPS
output rectification

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

V_{RRM} (V)	$I_{F(AV)}$ (A)	$V_F(max)@25C$ (V)	$V_F(max)@125C$ (V)	@ I_F per diode (A)	SOT78 (TO220AB)	SOT404 (D ² PAK)	SOT186A (TO220F-3L)	SOT428 (DPAK)
								
45	2 x 10	0.58	0.52	10	WN3S20H45C		WN3S20H45CX	
	2 x 15	0.60	0.55	15	WN3S3045C	WN3S3045CB	WN3S3045CX	
		0.60	0.54	15	WN3S30H45C	WN3S30H45CB	WN3S30H45CX	
60	2 x 15	0.70	0.69	15	WN3S3060C	WN3S3060CB	WN3S3060CX	
	20	0.65	0.63	15	WN3S30H60C	WN3S30H60CB	WN3S30H60CX	
	30	0.69	0.68	20				WN3S2060D
65	2 x 5	0.78	0.77	30				WN3S3060D
	2 x 5	0.69	0.65	5				WN3S10H65CD
		0.67	0.62	5	WN3S10100C	WN3S10100CB	WN3S10100CX	WN3S10100CD
100	2 x 10	0.67	0.62	10	WN3S20S100C	WN3S20S100CB	WN3S20S100CX	
		0.95	0.80	10	WNS20S100C	WNS20S100CB	WNS20S100CX	
		0.75	0.70	10	WNS20H100C	WNS20H100CB		
		0.75	0.70	10	WN3S20H100C	WN3S20H100CB	WN3S20H100CX	
		0.71	0.67	15	WNS30H100C	WNS30H100CB		
	2 x 15	0.77	0.67	15	WN3S30100C	WN3S30100CB	WN3S30100CX	
		0.71	0.67	15	WN3S30H100C	WN3S30H100CB	WN3S30H100CX	
		0.78	0.71	20	WNS40100C			
		0.78	0.71	20	WN3S40100C	WN3S40100CB	WN3S40100CX	
		0.71	0.68	20	WNS40H100C	WNS40H100CB		
	2 x 20	0.71	0.68	20	WN3S40H100C	WN3S40H100CB	WN3S40H100CX	
		0.75	0.68	20				WN3S20100D
		0.86	0.76	30				WN3S30100D
	20	0.95	0.71	15	WN3S30H120C	WN3S30H120CBT	WN3S30H120CX	
	2 x 15	0.95	0.72	20	WN3S40120C	WN3S40120CBT	WN3S40120CX	
	2 x 20	0.95	0.72	20	WN3S10S150CT	WN3S10S150CBT	WN3S10S150CXT	WN3S10S150CDT
120	2 x 5	0.81	0.68	5	WN3S10H150C		WN3S10H150CX	
		1.00	0.75	5	WN3S20150CT	WN3S20150CBT	WN3S20150CXT	WN3S20150CDT
	2 x 10	0.84	0.72	10	WN3S20H150C		WN3S20H150CX	
	2 x 15	0.81	0.67	15	WN3S30H150CT		WN3S30H150CXT	
	2 x 20	0.84	0.71	20	WN3S40150CT		WN3S40150CXT	
	20	0.87	0.75	20				WN3S20150DT
	30	0.89	0.78	30				WN3S30150DT
	2 x 15	0.81	0.67	15		WN3S30H170CBT		
	2 x 20	0.84	0.71	20		WN3S40170CBT		
170	2 x 5	0.83	0.70	5	WN3S10S200CT	WN3S10S200CBT	WN3S10S200CXT	WN3S10S200CDT
		0.82	0.69	5				WN3S10200CDT
		0.81	0.68	5				WN3S10H200CDT
	2 x 10	0.86	0.75	10	WN3S20200CT	WN3S20200CBT	WN3S20200CXT	WN3S20200CDT
	2 x 15	0.95	0.85	15	WN3S30S200CT	WN3S30S200CBT	WN3S30S200CXT	
	2 x 20	0.87	0.75	20	WN3S40200CT	WN3S40200CBT	WN3S40200CXT	
	20	0.90	0.80	20				WN3S20200DT
	30	0.93	0.80	30				WN3S30200DT

LOW VF BRIDGE

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

V_{RRM} (V)	$I_{F(AV)}$ (A)	$V_F(typ)@25C$ (V)	@ I_F (A)	$t_r(typ)@25C$ (us)	GBU	GBJ
						
600	15	0.88	15	3	WNB1560U	
	25	0.9	25	3	WNB2560U	WNB2560M

3-PHASE BRIDGE RECTIFIER

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

V_{RRM} (V)	$I_{F(AV)}$ (A)	$V_F(\text{typ})@25C$ (V)	@ I_F (A)	$t_r(\text{typ})@25C$ (us)	WMM01
1600	75	1.25	75		
					WDMF75M16

CASCO DIODES
employing series die technology for the lowest possible t_r

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

Casco Diodes for Continuous Current Mode PFC

V_{RRM} (V)	$I_{F(AV)}$ (A)	$V_F(\text{typ})@150C$ (V)	@ I_F (A)	$t_r(\text{typ})@25C$ (ns)	SOD113 (2-pinSOT186A)
600	8	2	8	12.5	
					BYC58X-600

HYBRID DIODES (FRD+ STD DIODES)

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

FRD V_{RRM} (V)	$I_{F(AV)}$ (A)	$V_F(\text{typ})@150C$ (V)	@ I_F (A)	$t_r(\text{typ})@25C$ (ns)	STD V_{RRM} (V)	$I_{F(AV)}$ (A)	$V_F(\text{typ})@150C$ (V)	@ I_F (A)	T0247-3L
600	30	1.38	30	35	1600	45	1.1	45	
									WNC3060D45160W

AUTO POWER DIODES

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

V_{RRM} (V)	$I_{F(AV)}$ (A)	$V_F(\text{typ})@150C$ (V)	@ I_F (A)	$t_r(\text{typ})@25C$ (ns)	T0247-2L (True 2 pin)	SOT404 (D ² PAK)
600	30	1.4	30	60		
		0.98	30	65	BYC30W-600PT2-A	BYV30B-600P-A
	60	1.1	60	79	BYV30W-600PT2-A	
	75		75		BYV60W-600PT2-A	
1200	35	1.15	35		BYV75W-600PT2-A	
	45	1.1	45		WND45P12W-A	WND35P12B-A
	60	0.99	60		WND60P12W-A	

600V HYPERFAST POWER DIODES

Types in **bold blue** represent new products

Types in ***bold red italic*** represent products in development

Hyperfast diodes for Continuous Current Mode PFC

[illegible]

1200V HYPERFAST POWER DIODES

In the spotlight

1200V Planar Hyperfast Power Diodes

Planar Passivated, Pt doping technology

Fast recovery, System efficiency improvement

Soft recovery, Reduce system EMI

Avalanche ruggedness

Reduces switching losses in associated MOSFET or IGBT



Types in **bold blue** represent new products

Types in ***bold red italic*** represent products in development

V _{RRM} (V)	I _{F(AV)} (A)	V _F (typ)@150C (V)	@I _F (A)	t _{rr} (typ)@25C (ns)	SOD59 (TO220AC)	SOD142 (TO247-2L true 2pin)
						
1200V	5	2	5	42	BYC5-1200P	
	8	2	8	46	BYC8-1200P	
	15	2	15	61	BYC15-1200P	
	30	2.1	30	70	BYC30-1200P	BYC30W-1200P
	40	2.2	40	91		BYC40W-1200P
	60	2.2	60	96		BYC60W-1200P
	75	2.2	75	113		BYC75W-1200P
	100	2.2	100	115		BYC100W-1200P

STANDARD RECTIFIER

Types in **bold blue** represent new products

Types in ***bold red italic*** represent products in development

V _{RRM} (V)	I _{F(AV)} (A)	V _F (typ)@150C (V)	@I _F (A)	IFSM @10ms (A)	SOD59 (TO220-2L)	SOD113AA (TO220F-2L)	SOD142 (TO247-2L)	SOT428 (DPAK)	SOT404 (D ² PAK)	SOT78D (IIT0220)
										
600V	10	0.82	10	350		WND10M600X				
	8	0.84	8	150				SK8D		
	10	1	10	180		WND10P08X				
	10	1	10	180						WND10P08Y
800V	35	1.15	35	400	WND35P08	WND35P08X				
	35	1.15	35	400					WND35P12B	
1200V	8	1	8	150		WND08P16X		WND08P16D		
	45	1	45	475			WND45P16W			
	60	1.08	60	650			WND60P16W			



WeEn
WeEn Semiconductors

04
Silicon Carbide

SiC MOSFET

SiC Diode
(SiC Diode G2 1200V)
(SiC Diode G5 650V)
(SiC Diode G6 650V)

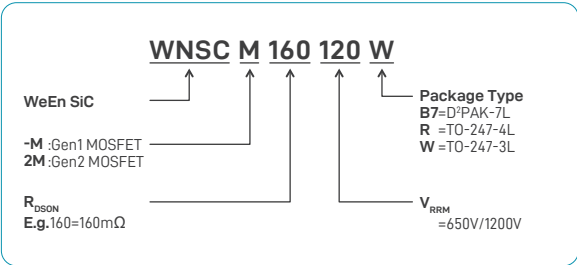
SiC DIODE Auto Grade

SiC Power Module Product

SiC Bare die
(SiC Diode)
(SiC MOSFET)

SiC MOSFET

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In the spotlight

SiC MOSFET

High Threshold Voltage ~2.6V@ 25°C (2V@ 125°C)

Capable of 15-18V gate-drive voltage

Gate driving voltage ~12-22V, reliability confirmed.

Reduced gate-source ringing

Low thermal resistance

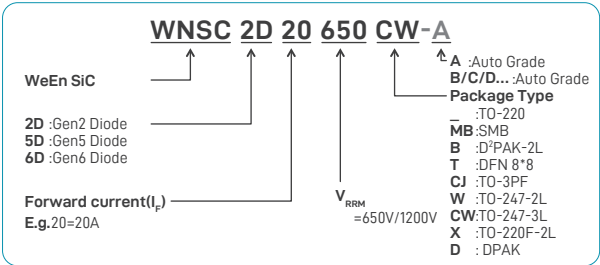
High Blocking Voltage(Beyond 1500V)

Low Rds(on)@ High Temperature

VBRDS (V)	RDS(ON)(TYP) @15Vgs @25°C (mΩ)	Tj(max)°C	Qualification	SOT429 (TO247-3L)	SOT429 (TO247-4L)	TO263-7L (D²PAK-7L)	TOLL
650	12	175	Industrial		<i>WNSC2M12065R</i>	<i>WNSC2M12065B7</i>	
	16	175	Industrial		<i>WNSC2M16065R</i>	<i>WNSC2M16065B7</i>	
	20	175	Industrial		<i>WNSC2M20065R</i>	<i>WNSC2M20065B7</i>	
	25	175	Industrial		<i>WNSC2M25065R</i>	<i>WNSC2M25065B7</i>	
	30	175	Industrial		<i>WNSC2M30065R</i>	<i>WNSC2M30065B7</i>	
	45	175	Industrial	WNSC2M45065W	WNSC2M45065R	WNSC2M45065B7	<i>WNSC2M45065TL</i>
	55	175	Industrial	<i>WNSC2M55065W</i>	<i>WNSC2M55065R</i>	<i>WNSC2M55065B7</i>	<i>WNSC2M55065TL</i>
	70	175	Industrial	<i>WNSC2M70065W</i>	<i>WNSC2M70065R</i>	<i>WNSC2M70065B7</i>	
1200	120	175	Industrial	<i>WNSC2M120065W</i>	<i>WNSC2M120065R</i>	<i>WNSC2M120065B7</i>	
	20	175	Industrial		WNSC2M20120R	WNSC2M20120B7	
	30	175	Industrial		<i>WNSC2M30120R</i>	WNSC2M30120B7	
	40	175	Industrial	WNSC2M40120W	WNSC2M40120R	WNSC2M40120B7	
	60	175	Industrial	WNSC2M60120W	WNSC2M60120R	WNSC2M60120B7	
	75	175	Industrial	WNSC2M75120W	WNSC2M75120R	WNSC2M75120B7	
1700	150	175	Industrial	WNSC2M150120W	WNSC2M150120R	WNSC2M150120B7	
	1000	175	Industrial	WNSC2M1K0170W		WNSC2M1K0170B7	

SiC Diode

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In the spotlight

1200V SiC Schottky Diode

- Highly stable switching performance
- High forward surge capability IFSM
- Extremely fast reverse recovery time
- Superior in efficiency to Silicon Diode alternatives
- Reduced losses in associated MOSFET
- Reduced cooling requirements
- Reduced EMI
- RoHS compliant
- High junction operating temperature capability (T_{jmax} = 175 °C)

In the spotlight

650V G5 SiC Schottky Diode

- Highly stable switching performance
- High forward surge capability IFSM
- Extremely fast reverse recovery time
- Superior in efficiency to Silicon Diode alternatives
- Reduced losses in associated MOSFET
- Reduced EMI
- Reduced cooling requirements
- RoHS compliant

In the spotlight

650V G6 SiC Schottky Diode

- BV > 800V & Ultra low Ir(<10uA)
- Ultra low Vf (1.26V nominal)
- Ag sinter welding technolgy
- Ultra thin wafer, Low Ron & Low Rth
- Very wide portfolio

SiC Diode G2 1200V

V _{RRM} (V)	I _{F(AV)} (V)	V _F (typ)@ 25°C (V)	Q _r (typ)@ 25°C (nC)	SOD59A(TO220-2L) True 2 pin	TO247-2L True 2 pin	TO247-3L	SOT428 (DPAK)	TO263-2L(D ² PAK-2L) True 2 pin
								
1200	2	1.42	4	WNSC2D021200			WNSC2D021200D	
	2	1.32	4				WNSC2D021200D-B	
	5	1.42	10	WNSC2D051200			WNSC2D051200D	
	5	1.49	10				WNSC2D051400D	
	10	1.42	23	WNSC2D101200	WNSC2D101200W		WNSC2D101200D	WNSC2D101200BT2
	15	1.42	35		WNSC2D151200W			WNSC2D151200BT2
	20	1.45	39	WNSC2D201200	WNSC2D201200W			WNSC2D201200BT2
	30	1.42	68		WNSC2D301200W-B			
	40	1.42	99		WNSC2D301200W			
	50	1.42	125		WNSC2D401200W			
	2 x 5	1.42	10		WNSC2D501200W			
	2 x 10	1.42	23			WNSC2D101200CW		
	2 x 15	1.45	35			WNSC2D201200CW		
	2 x 20	1.5	39			WNSC2D301200CW		
						WNSC2D401200CW		

SiC Diode G5 650V

V _{RRM} (V)	I _{F(AV)} (A)	V _F (typ)@25C (V)	Q _r (typ)@ 25C (nC)	SOD59A(TO220-2L) True 2 pin	IIT0220	SOD113 (TO220F-2L)	TO247-2L True 2 pin	TO247-3L	TO-3PF	SOT428 (DPAK)	DFN 8x8
											
650	4	1.45	6.5	WNSC5D04650	WNSC5D04650Y	WNSC5D04650X				WNSC5D04650D	WNSC5D04650T
	6	1.45	9	WNSC5D06650	WNSC5D06650Y	WNSC5D06650X				WNSC5D06650D	WNSC5D06650T
	8	1.45	12	WNSC5D08650	WNSC5D08650Y	WNSC5D08650X				WNSC5D08650D	WNSC5D08650T
	10	1.45	14.5	WNSC5D10650	WNSC5D10650Y	WNSC5D10650X	WNSC5D10650W			WNSC5D10650D	WNSC5D10650T
	12	1.45	18	WNSC5D12650	WNSC5D12650Y						WNSC5D12650T
	20	1.45	30	WNSC5D20650		WNSC5D20650X	WNSC5D20650W				
	30	1.45	48				WNSC5D30650W				
	2 x 8	1.5	12					WNSC5D16650CW	WNSC5D16650CJ		
	2 x 10	1.5	14.5					WNSC5D20650CW	WNSC5D20650CJ		
	2 x 15	1.45	24					WNSC5D30650CW			

SiC Diode G6 650V

V _{RRM} (V)	I _{F(AV)} (A)	V _F (typ)@25C (V)	Q _r (typ)@ 25C (nC)	SOD59A(TO220-2L) True 2 pin	SOD113 (TO220F-2L)	TO247-2L (True 2 pin)	SOT429 (TO247-3L)	TO-3PF	SOT428 (DPAK)	TO263-2L(D ² PAK-2L) True 2 pin	DFN 8x8	SMB
												
650	1	1.15	10						WNSC6D02650D			WNSC6D01650MB
	2	1.3	4						WNSC6D04650D			
	4	1.26	9	WNSC6D04650					WNSC6D06650D			
	6	1.26	13	WNSC6D06650	WNSC6D06650X				WNSC6D08650D		WNSC6D06650T	
	8	1.26	18	WNSC6D08650	WNSC6D08650X				WNSC6D10650D		WNSC6D08650T	
	10	1.29	24	WNSC6D10650	WNSC6D10650X					WNSC6D10650B	WNSC6D10650T	
	16	1.29	36	WNSC6D16650	WNSC6D16650X		WNSC6D16650CW			WNSC6D16650B		
	20	1.26	48	WNSC6D20650		WNSC6D20650W				WNSC6D20650B		
	30	1.26	72			WNSC6D30650W						
	2x10	1.29	24				WNSC6D20650CW	WNSC6D20650CJ				
	2x15	1.26	36				WNSC6D30650CW					
	2x20	1.26	48				WNSC6D40650CW					

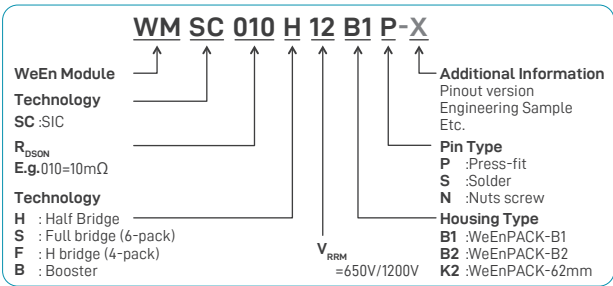
SiC Diode Auto Grade

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Types in **bold red italic** represent products in development

V_{RRM} (V)	$I_{F(AV)}$ (A)	V_F (typ)@25C (V)	SOD59A(TO220-2L) True 2 pin	TO247-2L (True 2 pin)	SOT429 (TO247-3L)	TO263-2L (D2PAK-2L) True 2 pin
						
650	10	1.26	<i>WNSC6D10650-A</i>	<i>WN5C5D10650W-A</i>		WN5C6D10650BT2-A
	20	1.26	<i>WNSC6D20650-A</i>	<i>WN5C6D20650W-A</i>	<i>WNSC6D20650CW-A</i>	WN5C6D20650BT2-A
	30	1.26			<i>WNSC6D30650CW-A</i>	<i>WNSC6D30650BT2-A</i>
	40	1.26			<i>WNSC6D40650CW-A</i>	
1200	10	1.42	<i>WNSC2D101200-A</i>	<i>WNSC2D101200W-A</i>		<i>WNSC2D101200BT2-A</i>
	20	1.45	<i>WNSC2D201200-A</i>	<i>WNSC2D201200W-A</i>	<i>WNSC2D201200CW-A</i>	<i>WNSC2D201200BT2-A</i>
	30	1.42			<i>WNSC2D301200CW-A</i>	
	40	1.42			<i>WNSC2D401200CW-A</i>	

SiC Power Module Product

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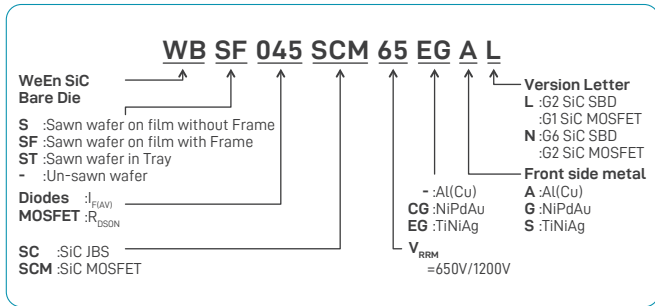


P: Press Fit, S: Solder Pin, N: Nut Screw

Package		Configuration	Part Number	Voltage (V)	Rdson(Typ) @18Vgs@25°C (mΩ)	Rdson(Typ) @15Vgs@25°C (mΩ)
WeEnPACK-B1		Half bridge	<i>WMSC008H12B1P(S)</i>	1200	6	8
			<i>WMSC010H12B1P(S)</i>	1200	9.5	11
			<i>WMSC016H12B1P(S)</i>	1200	14	16
			<i>WMSC020H12B1P(S)</i>	1200	17	20
			<i>WMSC030H12B1P(S)</i>	1200	27	30
			<i>WMSC040H12B1P(S)</i>	1200	34	40
		4 pack	<i>WMSC020F12B1P(S)</i>	1200	17	20
			<i>WMSC030F12B1P(S)</i>	1200	27	30
			<i>WMSC040F12B1P(S)</i>	1200	34	40
			<i>WMSC020S12B1P(S)</i>	1200	17	20
			<i>WMSC030S12B1P(S)</i>	1200	27	30
			<i>WMSC040S12B1P(S)</i>	1200	34	40
		6 pack	<i>WMSC060S12B1P(S)</i>	1200	50	60
			<i>WMSC020B12B1P(S)-B</i>	1200	17	20
			<i>WMSC020B12B1P(S)-C</i>	1200	17	20
			<i>WMSC030B12B1P(S)-C</i>	1200	27	30
			<i>WMSC040B12B1P(S)-C</i>	1200	34	40
			<i>WMSC040B12B1P(S)-D</i>	1200	34	40
WeEnPACK-B2		Half bridge	<i>WMSC004H12B2P(S)</i>	1200	3.6	4
			<i>WMSC006H12B2P(S)</i>	1200	5.5	6
			<i>WMSC008H12B2P(S)</i>	1200	6.5	8
		4 pack	<i>WMSC011F12B2P(S)</i>	1200	9.5	11
			<i>WMSC016F12B2P(S)</i>	1200	14	16
			<i>WMSC002H12K2N</i>	1200	1.6	2
WeEnPACK-62mm		Half bridge	<i>WMSC2R6H12K2N</i>	1200	2	2.6
			<i>WMSC004H12K2N</i>	1200	3	4
			<i>WMSC5R5H12K2N</i>	1200	4	5.5
			<i>WMSC008H12K2N</i>	1200	6	8
			<i>WMSC010H12K2N</i>	1200	8	10

SiC Bare die

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development



SiC Diode Bare Die

"x" for Front Side Metal - A : Al(Cu), G: NiPdAu, S: TiNiAg

V_{RRM} (V)	$I_{F(AV)}$ (A)	V_F (typ)@25C(V)	Part Number	Description
1200	10	1.42	<i>WB10SC120xL</i>	G2 SiC diode / 1200V / 10A
	15	1.42	<i>WB15SC120xL</i>	G2 SiC diode / 1200V / 15A
	20	1.45	<i>WB20SC120xL</i>	G2 SiC diode / 1200V / 20A
	25	1.42	<i>WB25SC120xL</i>	G2 SiC diode / 1200V / 25A
	30	1.42	<i>WB30SC120xL</i>	G2 SiC diode / 1200V / 30A
	50	1.42	<i>WB50SC120xL</i>	G2 SiC diode / 1200V / 50A
650	4	1.45	<i>WB04SC65xL</i>	G5 SiC diode / 650V / 4A
	6	1.45	<i>WB06SC65xL</i>	G5 SiC diode / 650V / 6A
	8	1.45	<i>WB08SC65xL</i>	G5 SiC diode / 650V / 8A
	10	1.45	<i>WB10SC65xL</i>	G5 SiC diode / 650V / 10A
	12	1.45	<i>WB12SC65xL</i>	G5 SiC diode / 650V / 12A
	20	1.45	<i>WB20SC65xL</i>	G5 SiC diode / 650V / 20A
	30	1.45	<i>WB30SC65xL</i>	G5 SiC diode / 650V / 30A
	2	1.26	<i>WB02SC65xN</i>	G6 SiC diode / 650V / 2A
	4	1.26	<i>WB04SC65xN</i>	G6 SiC diode / 650V / 4A
	6	1.26	<i>WB06SC65xN</i>	G6 SiC diode / 650V / 6A
	8	1.26	<i>WB08SC65xN</i>	G6 SiC diode / 650V / 8A
	10	1.29	<i>WB10SC65xN</i>	G6 SiC diode / 650V / 10A
	10	1.29	<i>WB10SC65xN-A</i>	Auto Grade - G6 SiC diode / 650V / 10A
	16	1.29	<i>WB16SC65xN</i>	G6 SiC diode / 650V / 16A
	16	1.29	<i>WB16SC65xN-A</i>	Auto Grade - G6 SiC diode / 650V / 16A
	20	1.26	<i>WB20SC65xN</i>	G6 SiC diode / 650V / 20A

SiC MOSFET Bare Die

"x" for Front Side Metal - A : Al(Cu), G: NiPdAu, S: TiNiAg

V_{BRDS} (V)	RDSON(TYP) @15Vgs @ 25°C (mΩ)	$T_{j(max)}$	Part Number	Description
1200	12	175	WB012SCM120CGxN	SiC MOSFET / 1200V / 12mΩ
	20	175	WB020SCM120CGxN	SiC MOSFET / 1200V / 20mΩ
	30	175	<i>WB030SCM120CGxN</i>	SiC MOSFET / 1200V / 30mΩ
	40	175	WB040SCM120CGxN	SiC MOSFET / 1200V / 40mΩ
	60	175	<i>WB060SCM120CGxN</i>	SiC MOSFET / 1200V / 60mΩ
	75	175	<i>WB075SCM120CGxN</i>	SiC MOSFET / 1200V / 75mΩ
	80	175	WB080SCM120CGxL	SiC MOSFET / 1200V / 80mΩ
	150	175	<i>WB150SCM120CGxN</i>	SiC MOSFET / 1200V / 150mΩ
	160	175	WB160SCM120CGxL	SiC MOSFET / 1200V / 160mΩ
	1000	175	WB1K0SCM170CGxN	SiC MOSFET / 1700V / 1000mΩ



05

Transient Voltage Suppressors

200W TVS DIODES, SOD123 SERIES

400W TVS DIODES, P4SOD123 SERIES

400W TVS DIODES, SMAJ SERIES

600W TVS DIODES, P6SMAL SERIES

600W TVS DIODES, SMBJ SERIES

P6SMBJ SERIES

1000W TVS DIODES, P1KSMBJ SERIES

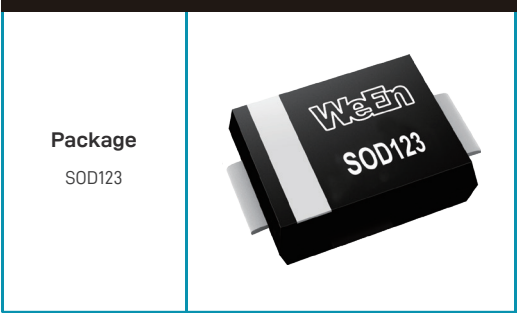
1500W TVS DIODES, SMCJ SERIES

3000W TVS DIODES, SMDJ SERIES

5000W TVS DIODES, 5.0SMDJ SERIES

6600W TVS DIODES, DO218 SERIES

200W TVS DIODES, SOD123 SERIES



	SPEC	Requirement
Package	SOD123	HF + UL94V0+RoHS +Pb free plating
Power	200W	10/1000 pulse
Tj	-65C~150C	
Tstg	150C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
SOD5.0A	SOD5.0CA	SOD123	10	6.45	6.98	5	200	21.7	9.2
SOD6.0A	SOD6.0CA	SOD123	10	6.8	7.32	6	200	19.4	10.3
SOD6.5A	SOD6.5CA	SOD123	10	7.27	7.92	6.5	150	17.9	11.2
SOD7.0A	SOD7.0CA	SOD123	10	7.82	8.57	7	75	16.7	12
SOD8.0A	SOD8.0CA	SOD123	1	8.95	9.76	8	25	14.7	13.6
SOD9.0A	SOD9.0CA	SOD123	1	10.08	11.03	9	5	13	15.4
SOD10A	SOD10CA	SOD123	1	11.21	12.19	10	2.5	11.8	17
SOD11A	SOD11CA	SOD123	1	12.32	13.38	11	2.5	11.1	18.2
SOD12A	SOD12CA	SOD123	1	13.43	14.57	12	2.5	10.1	19.9
SOD13A	SOD13CA	SOD123	1	14.51	15.79	13	1	9.3	21.5
SOD14A	SOD14CA	SOD123	1	15.72	17.08	14	1	8.6	23.2
SOD15A	SOD15CA	SOD123	1	16.83	18.37	15	1	8.2	24.4
SOD16A	SOD16CA	SOD123	1	17.93	19.56	16	1	7.7	26
SOD17A	SOD17CA	SOD123	1	19.08	20.72	17	1	7.2	27.6
SOD18A	SOD18CA	SOD123	1	20.19	21.9	18	1	6.8	29.2
SOD20A	SOD20CA	SOD123	1	22.41	24.28	20	1	6.2	32.4
SOD22A	SOD22CA	SOD123	1	24.63	26.66	22	1	5.6	35.5
SOD24A	SOD24CA	SOD123	1	26.95	29.23	24	1	5.1	38.9
SOD26A	SOD26CA	SOD123	1	29.12	31.67	26	1	4.8	42.1
SOD28A	SOD28CA	SOD123	1	31.33	34.16	28	1	4.4	45.4
SOD30A	SOD30CA	SOD123	1	33.55	36.54	30	1	4.1	48.4
SOD33A	SOD33CA	SOD123	1	36.98	40.3	33	1	3.8	53.3
SOD36A	SOD36CA	SOD123	1	40.3	43.9	36	1	3.4	58.1
SOD40A	SOD40CA	SOD123	1	44.7	48.8	40	1	3.1	64.5
SOD43A	SOD43CA	SOD123	1	48.2	52.4	43	1	2.9	69.4
SOD45A	SOD45CA	SOD123	1	50.4	54.9	45	1	2.8	72.7
SOD48A	SOD48CA	SOD123	1	53.7	58.5	48	1	2.6	77.4
SOD51A	SOD51CA	SOD123	1	57.1	62.3	51	1	2.4	82.4
SOD54A	SOD54CA	SOD123	1	60.5	65.8	54	1	2.3	87.1
SOD58A	SOD58CA	SOD123	1	64.9	70.6	58	1	2.1	93.6
SOD60A	SOD60CA	SOD123	1	67.2	73.1	60	1	2.1	96.8
SOD64A	SOD64CA	SOD123	1	71.7	77.9	64	1	1.9	103
SOD70A	SOD70CA	SOD123	1	78.4	85.3	70	1	1.7	113
SOD75A	SOD75CA	SOD123	1	84	91.4	75	1	1.6	121
SOD78A	SOD78CA	SOD123	1	87.4	95	78	1	1.6	126
SOD85A	SOD85CA	SOD123	1	95.2	103.2	85	1	1.5	137

400W TVS DIODES, P4SOD123 SERIES

Package
SOD123



	SPEC	Requirement
Package	SOD123	HF + UL94V0+RoHS +Pb free plating
Power	400W	10/1000 pulse
Tj	-65C~150C	
Tstg	150C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
P4SOD5.0A	P4SOD5.0CA	SOD123	10	6.4	7	5	200	43.5	9.2
P4SOD6.0A	P4SOD6.0CA	SOD123	10	6.67	7.37	6	200	38.8	10.3
P4SOD6.5A	P4SOD6.5CA	SOD123	10	7.22	7.98	6.5	125	35.7	11.2
P4SOD7.0A	P4SOD7.0CA	SOD123	10	7.78	8.6	7	75	33.3	12
P4SOD8.0A	P4SOD8.0CA	SOD123	1	8.89	9.83	8	25	29.4	13.6
P4SOD9.0A	P4SOD9.0CA	SOD123	1	10	11.1	9	5	26	15.4
P4SOD10A	P4SOD10CA	SOD123	1	11.1	12.3	10	2.5	23.5	17
P4SOD11A	P4SOD11CA	SOD123	1	12.2	13.5	11	1	22	18.2
P4SOD12A	P4SOD12CA	SOD123	1	13.3	14.7	12	1	20.1	19.9
P4SOD13A	P4SOD13CA	SOD123	1	14.4	15.9	13	1	18.6	21.5
P4SOD14A	P4SOD14CA	SOD123	1	15.6	17.2	14	1	17.2	23.2
P4SOD15A	P4SOD15CA	SOD123	1	16.7	18.5	15	1	16.4	24.4
P4SOD16A	P4SOD16CA	SOD123	1	17.8	19.7	16	1	15.4	26
P4SOD17A	P4SOD17CA	SOD123	1	18.9	20.9	17	1	14.5	27.6
P4SOD18A	P4SOD18CA	SOD123	1	20	22.1	18	1	13.7	29.2
P4SOD20A	P4SOD20CA	SOD123	1	22.2	24.5	20	1	12.3	32.4
P4SOD22A	P4SOD22CA	SOD123	1	24.4	26.9	22	1	11.3	35.5
P4SOD24A	P4SOD24CA	SOD123	1	26.7	29.5	24	1	10.3	38.9
P4SOD26A	P4SOD26CA	SOD123	1	28.9	31.9	26	1	9.5	42.1
P4SOD28A	P4SOD28CA	SOD123	1	31.1	34.4	28	1	8.8	45.4
P4SOD30A	P4SOD30CA	SOD123	1	33.3	36.8	30	1	8.3	48.4
P4SOD33A	P4SOD33CA	SOD123	1	36.7	40.6	33	1	7.5	53.3
P4SOD36A	P4SOD36CA	SOD123	1	40	44.2	36	1	6.9	58.1
P4SOD40A	P4SOD40CA	SOD123	1	44.4	49.1	40	1	6.2	64.5
P4SOD43A	P4SOD43CA	SOD123	1	47.8	52.8	43	1	5.8	69.4
P4SOD45A	P4SOD45CA	SOD123	1	50	55.3	45	1	5.5	72.7
P4SOD48A	P4SOD48CA	SOD123	1	53.3	58.9	48	1	5.2	77.4
P4SOD51A	P4SOD51CA	SOD123	1	56.7	62.7	51	1	4.9	82.4
P4SOD54A	P4SOD54CA	SOD123	1	60	66.3	54	1	4.6	87.1
P4SOD58A	P4SOD58CA	SOD123	1	64.4	71.2	58	1	4.3	93.6
P4SOD60A	P4SOD60CA	SOD123	1	66.7	73.7	60	1	4.1	96.8
P4SOD64A	P4SOD64CA	SOD123	1	71.1	78.6	64	1	3.9	103
P4SOD70A	P4SOD70CA	SOD123	1	77.8	86	70	1	3.5	113
P4SOD75A	P4SOD75CA	SOD123	1	83.3	92.1	75	1	3.3	121
P4SOD78A	P4SOD78CA	SOD123	1	86.7	95.8	78	1	3.2	126
P4SOD85A	P4SOD85CA	SOD123	1	94.4	104	85	1	2.9	137

400W TVS DIODES, SMAJ SERIES



	SPEC	Requirement
Package	SMA (J lead)	HF + UL94V0+RoHS +Pb free plating
Power	400W	10/1000 pulse
Tj	-65C~150C	
Tstg	150C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
SMAJ5.0A	SMAJ5.0CA	SMA	10	6.45	6.98	5	400	43.5	9.2
SMAJ6.0A	SMAJ6.0CA	SMA	10	6.8	7.32	6	400	38.8	10.3
SMAJ6.5A	SMAJ6.5CA	SMA	10	7.27	7.92	6.5	250	35.7	11.2
SMAJ7.0A	SMAJ7.0CA	SMA	10	7.82	8.57	7	100	33.3	12
SMAJ8.0A	SMAJ8.0CA	SMA	1	8.95	9.76	8	50	29.4	13.6
SMAJ9.0A	SMAJ9.0CA	SMA	1	10.1	11	9	10	26	15.4
SMAJ10A	SMAJ10CA	SMA	1	11.21	12.19	10	5	23.5	17
SMAJ11A	SMAJ11CA	SMA	1	12.32	13.38	11	1	22	18.2
SMAJ12A	SMAJ12CA	SMA	1	13.43	14.57	12	1	20.1	19.9
SMAJ13A	SMAJ13CA	SMA	1	14.54	15.76	13	1	18.6	21.5
SMAJ14A	SMAJ14CA	SMA	1	15.75	17.04	14	1	17.2	23.2
SMAJ15A	SMAJ15CA	SMA	1	16.86	18.34	15	1	16.4	24.4
SMAJ16A	SMAJ16CA	SMA	1	17.97	19.52	16	1	15.4	26
SMAJ17A	SMAJ17CA	SMA	1	19.08	20.72	17	1	14.5	27.6
SMAJ18A	SMAJ18CA	SMA	1	20.19	21.9	18	1	13.7	29.2
SMAJ20A	SMAJ20CA	SMA	1	22.41	24.28	20	1	12.3	32.4
SMAJ22A	SMAJ22CA	SMA	1	24.63	26.66	22	1	11.3	35.5
SMAJ24A	SMAJ24CA	SMA	1	26.95	29.23	24	1	10.3	38.9
SMAJ26A	SMAJ26CA	SMA	1	29.12	31.67	26	1	9.5	42.1
SMAJ28A	SMAJ28CA	SMA	1	31.33	34.16	28	1	8.8	45.4
SMAJ30A	SMAJ30CA	SMA	1	33.55	36.54	30	1	8.3	48.4
SMAJ33A	SMAJ33CA	SMA	1	36.98	40.3	33	1	7.5	53.3
SMAJ36A	SMAJ36CA	SMA	1	40.3	43.9	36	1	6.9	58.1
SMAJ40A	SMAJ40CA	SMA	1	44.7	48.8	40	1	6.2	64.5
SMAJ43A	SMAJ43CA	SMA	1	48.2	52.4	43	1	5.8	69.4
SMAJ45A	SMAJ45CA	SMA	1	50.4	54.9	45	1	5.5	72.7
SMAJ48A	SMAJ48CA	SMA	1	53.7	58.5	48	1	5.2	77.4
SMAJ51A	SMAJ51CA	SMA	1	57.1	62.3	51	1	4.9	82.4
SMAJ54A	SMAJ54CA	SMA	1	60.5	65.8	54	1	4.6	87.1
SMAJ58A	SMAJ58CA	SMA	1	64.9	70.7	58	1	4.3	93.6
SMAJ60A	SMAJ60CA	SMA	1	67.2	73.2	60	1	4.1	96.8
SMAJ64A	SMAJ64CA	SMA	1	71.6	78	64	1	3.9	103
SMAJ70A	SMAJ70CA	SMA	1	78.4	85.4	70	1	3.5	113
SMAJ75A	SMAJ75CA	SMA	1	83.9	91.5	75	1	3.3	121
SMAJ78A	SMAJ78CA	SMA	1	87.4	95.1	78	1	3.2	126
SMAJ85A	SMAJ85CA	SMA	1	95.1	103.3	85	1	2.9	137

400W TVS DIODES, SMAJ SERIES



	SPEC	Requirement
Package	SMA (J lead)	HF + UL94V0+RoHS +Pb free plating
Power	400W	10/1000 pulse
Tj	-65C~150C	
Tstg	150C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
SMAJ90A	SMAJ90CA	SMA	1	100	111	90	1	2.8	146
SMAJ100A	SMAJ100CA	SMA	1	111	123	100	1	2.5	162
SMAJ110A	SMAJ110CA	SMA	1	122	135	110	1	2.3	177
SMAJ120A	SMAJ120CA	SMA	1	133	147	120	1	2.1	193
SMAJ130A	SMAJ130CA	SMA	1	144	159	130	1	1.9	209
SMAJ150A	SMAJ150CA	SMA	1	167	185	150	1	1.7	243
SMAJ160A	SMAJ160CA	SMA	1	178	197	160	1	1.6	259
SMAJ170A	SMAJ170CA	SMA	1	189	209	170	1	1.5	275
SMAJ180A	SMAJ180CA	SMA	1	201	222	180	1	1.4	292
SMAJ190A	SMAJ190CA	SMA	1	209	231	190	1	1.4	304
SMAJ200A	SMAJ200CA	SMA	1	224	247	200	1	1.3	324
SMAJ220A	SMAJ220CA	SMA	1	246	272	220	1	1.1	356



600W TVS DIODES, P6SMAL SERIES



	SPEC	Requirement
Package	SMA (L-lead)	HF + UL94V0+RoHS +Pb free plating
Power	600W	10/1000 pulse
Tj	-65C~150C	
Tstg	150C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2

Uni-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
P6SMAL5.0A	SMAL	10	6.4	7	5	400	65.3	9.2
P6SMAL6.0A	SMAL	10	6.67	7.37	6	400	58.3	10.3
P6SMAL6.5A	SMAL	10	7.22	7.98	6.5	250	53.6	11.2
P6SMAL7.0A	SMAL	10	7.78	8.6	7	100	50	12
P6SMAL8.0A	SMAL	1	8.89	9.83	8	50	44.2	13.6
P6SMAL9.0A	SMAL	1	10	11.1	9	10	39	15.4
P6SMAL10A	SMAL	1	11.1	12.3	10	5	35.3	17
P6SMAL11A	SMAL	1	12.2	13.5	11	1	33	18.2
P6SMAL12A	SMAL	1	13.3	14.7	12	1	30.2	19.9
P6SMAL13A	SMAL	1	14.4	15.9	13	1	28	21.5
P6SMAL14A	SMAL	1	15.6	17.2	14	1	25.9	23.2
P6SMAL15A	SMAL	1	16.7	18.5	15	1	24.6	24.4
P6SMAL16A	SMAL	1	17.8	19.7	16	1	23.1	26
P6SMAL17A	SMAL	1	18.9	20.9	17	1	21.8	27.6
P6SMAL18A	SMAL	1	20	22.1	18	1	20.6	29.2
P6SMAL20A	SMAL	1	22.2	24.5	20	1	18.6	32.4
P6SMAL22A	SMAL	1	24.4	26.9	22	1	16.9	35.5
P6SMAL24A	SMAL	1	26.7	29.5	24	1	15.5	38.9
P6SMAL26A	SMAL	1	28.9	31.9	26	1	14.3	42.1
P6SMAL28A	SMAL	1	31.1	34.4	28	1	13.3	45.4
P6SMAL30A	SMAL	1	33.3	36.8	30	1	12.4	48.4
P6SMAL33A	SMAL	1	36.7	40.6	33	1	11.3	53.3
P6SMAL36A	SMAL	1	40	44.2	36	1	10.4	58.1
P6SMAL40A	SMAL	1	44.4	49.1	40	1	9.3	64.5
P6SMAL43A	SMAL	1	47.8	52.8	43	1	8.7	69.4
P6SMAL45A	SMAL	1	50	55.3	45	1	8.3	72.7
P6SMAL48A	SMAL	1	53.3	58.9	48	1	7.8	77.4
P6SMAL51A	SMAL	1	56.7	62.7	51	1	7.3	82.4
P6SMAL54A	SMAL	1	60	66.3	54	1	6.9	87.1
P6SMAL58A	SMAL	1	64.4	71.2	58	1	6.5	93.6
P6SMAL60A	SMAL	1	66.7	73.7	60	1	6.2	96.8
P6SMAL64A	SMAL	1	71.1	78.6	64	1	5.9	103
P6SMAL70A	SMAL	1	77.8	86	70	1	5.3	113
P6SMAL75A	SMAL	1	83.3	92.1	75	1	5	121
P6SMAL78A	SMAL	1	86.7	95.8	78	1	4.8	126
P6SMAL85A	SMAL	1	94.4	104	85	1	4.4	137

600W TVS DIODES, SMBJ SERIES



	SPEC	Requirement
Package	SMB (J-lead)	HF + UL94V0+RoHS +Pb free plating
Power	600W	10/1000 pulse
Tj	-65C~150C	
Tstg	150C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
SMBJ5.0A	SMBJ5.0CA	SMB	10	6.45	6.98	5	400	65.3	9.2
SMBJ6.0A	SMBJ6.0CA	SMB	10	6.8	7.32	6	400	58.3	10.3
SMBJ6.5A	SMBJ6.5CA	SMB	10	7.27	7.92	6.5	250	53.6	11.2
SMBJ7.0A	SMBJ7.0CA	SMB	10	7.82	8.57	7	100	50	12
SMBJ8.0A	SMBJ8.0CA	SMB	1	8.95	9.76	8	50	44.2	13.6
SMBJ9.0A	SMBJ9.0CA	SMB	1	10.1	11	9	10	39	15.4
SMBJ10A	SMBJ10CA	SMB	1	11.21	12.19	10	5	35.3	17
SMBJ11A	SMBJ11CA	SMB	1	12.32	13.38	11	1	33	18.2
SMBJ12A	SMBJ12CA	SMB	1	13.43	14.57	12	1	30.2	19.9
SMBJ13A	SMBJ13CA	SMB	1	14.54	15.76	13	1	28	21.5
SMBJ14A	SMBJ14CA	SMB	1	15.75	17.04	14	1	25.9	23.2
SMBJ15A	SMBJ15CA	SMB	1	16.86	18.34	15	1	24.6	24.4
SMBJ16A	SMBJ16CA	SMB	1	17.97	19.52	16	1	23.1	26
SMBJ17A	SMBJ17CA	SMB	1	19.08	20.72	17	1	21.8	27.6
SMBJ18A	SMBJ18CA	SMB	1	20.19	21.9	18	1	20.6	29.2
SMBJ20A	SMBJ20CA	SMB	1	22.41	24.28	20	1	18.6	32.4
SMBJ22A	SMBJ22CA	SMB	1	24.63	26.66	22	1	16.9	35.5
SMBJ24A	SMBJ24CA	SMB	1	26.95	29.23	24	1	15.5	38.9
SMBJ26A	SMBJ26CA	SMB	1	29.12	31.67	26	1	14.3	42.1
SMBJ28A	SMBJ28CA	SMB	1	31.33	34.16	28	1	13.3	45.4
SMBJ30A	SMBJ30CA	SMB	1	33.55	36.54	30	1	12.4	48.4
SMBJ33A	SMBJ33CA	SMB	1	36.98	40.3	33	1	11.3	53.3
SMBJ36A	SMBJ36CA	SMB	1	40.3	43.9	36	1	10.4	58.1
SMBJ40A	SMBJ40CA	SMB	1	44.7	48.8	40	1	9.3	64.5
SMBJ43A	SMBJ43CA	SMB	1	48.2	52.4	43	1	8.7	69.4
SMBJ45A	SMBJ45CA	SMB	1	50.4	54.9	45	1	8.3	72.7
SMBJ48A	SMBJ48CA	SMB	1	53.7	58.5	48	1	7.8	77.4
SMBJ51A	SMBJ51CA	SMB	1	57.1	62.3	51	1	7.3	82.4
SMBJ54A	SMBJ54CA	SMB	1	60.5	65.8	54	1	6.9	87.1
SMBJ58A	SMBJ58CA	SMB	1	64.9	70.7	58	1	6.5	93.6
SMBJ60A	SMBJ60CA	SMB	1	67.2	73.2	60	1	6.2	96.8
SMBJ64A	SMBJ64CA	SMB	1	71.6	78	64	1	5.9	103
SMBJ70A	SMBJ70CA	SMB	1	78.4	85.4	70	1	5.3	113
SMBJ75A	SMBJ75CA	SMB	1	83.9	91.5	75	1	5	121
SMBJ78A	SMBJ78CA	SMB	1	87.4	95.1	78	1	4.8	126
SMBJ85A	SMBJ85CA	SMB	1	95.1	103.3	85	1	4.4	137

P6SMBJ SERIES



	SPEC	Requirement
Product	P6SMBJxxx	
Package	SMB (J-lead)	HF + UL94V0+RoHS +Pb free plating
Power	600W	10/1000 pulse
Tj	-65C~150C	
Tstg	-65C ~150C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2
IFSM	100A	8.3ms single half sine wave
VF max	3.5V	50A, single die

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
P6SMBJ5.0A	P6SMBJ5.0CA	SMB	10	6.45	6.98	5	400	65.3	9.2
P6SMBJ6.0A	P6SMBJ6.0CA	SMB	10	6.8	7.32	6	400	58.3	10.3
P6SMBJ6.5A	P6SMBJ6.5CA	SMB	10	7.27	7.92	6.5	250	53.6	11.2
P6SMBJ7.0A	P6SMBJ7.0CA	SMB	10	7.82	8.57	7	100	50	12
P6SMBJ8.0A	P6SMBJ8.0CA	SMB	1	8.95	9.76	8	50	44.2	13.6
P6SMBJ9.0A	P6SMBJ9.0CA	SMB	1	10.1	11	9	10	39	15.4
P6SMBJ10A	P6SMBJ10CA	SMB	1	11.21	12.19	10	5	35.3	17
P6SMBJ11A	P6SMBJ11CA	SMB	1	12.32	13.38	11	1	33	18.2
P6SMBJ12A	P6SMBJ12CA	SMB	1	13.43	14.57	12	1	30.2	19.9
P6SMBJ13A	P6SMBJ13CA	SMB	1	14.54	15.76	13	1	28	21.5
P6SMBJ14A	P6SMBJ14CA	SMB	1	15.75	17.04	14	1	25.9	23.2
P6SMBJ15A	P6SMBJ15CA	SMB	1	16.86	18.34	15	1	24.6	24.4
P6SMBJ16A	P6SMBJ16CA	SMB	1	17.97	19.52	16	1	23.1	26
P6SMBJ17A	P6SMBJ17CA	SMB	1	19.08	20.72	17	1	21.8	27.6
P6SMBJ18A	P6SMBJ18CA	SMB	1	20.19	21.9	18	1	20.6	29.2
P6SMBJ20A	P6SMBJ20CA	SMB	1	22.41	24.28	20	1	18.6	32.4
P6SMBJ22A	P6SMBJ22CA	SMB	1	24.63	26.66	22	1	16.9	35.5
P6SMBJ24A	P6SMBJ24CA	SMB	1	26.95	29.23	24	1	15.5	38.9
P6SMBJ26A	P6SMBJ26CA	SMB	1	29.12	31.67	26	1	14.3	42.1
P6SMBJ28A	P6SMBJ28CA	SMB	1	31.33	34.16	28	1	13.3	45.4
P6SMBJ30A	P6SMBJ30CA	SMB	1	33.55	36.54	30	1	12.4	48.4
P6SMBJ33A	P6SMBJ33CA	SMB	1	36.98	40.3	33	1	11.3	53.3
P6SMBJ36A	P6SMBJ36CA	SMB	1	40.3	43.9	36	1	10.4	58.1
P6SMBJ40A	P6SMBJ40CA	SMB	1	44.7	48.8	40	1	9.3	64.5
P6SMBJ43A	P6SMBJ43CA	SMB	1	48.2	52.4	43	1	8.7	69.4
P6SMBJ45A	P6SMBJ45CA	SMB	1	50.4	54.9	45	1	8.3	72.7
P6SMBJ48A	P6SMBJ48CA	SMB	1	53.7	58.5	48	1	7.8	77.4
P6SMBJ51A	P6SMBJ51CA	SMB	1	57.1	62.3	51	1	7.3	82.4
P6SMBJ54A	P6SMBJ54CA	SMB	1	60.5	65.8	54	1	6.9	87.1
P6SMBJ58A	P6SMBJ58CA	SMB	1	64.9	70.7	58	1	6.5	93.6
P6SMBJ60A	P6SMBJ60CA	SMB	1	67.2	73.2	60	1	6.2	96.8
P6SMBJ64A	P6SMBJ64CA	SMB	1	71.6	78	64	1	5.9	103
P6SMBJ70A	P6SMBJ70CA	SMB	1	78.4	85.4	70	1	5.3	113
P6SMBJ75A	P6SMBJ75CA	SMB	1	83.9	91.5	75	1	5	121
P6SMBJ78A	P6SMBJ78CA	SMB	1	87.4	95.1	78	1	4.8	126
P6SMBJ85A	P6SMBJ85CA	SMB	1	95.1	103.3	85	1	4.4	137

P6SMBJ SERIES



	SPEC	Requirement
Product	P6SMBJxxx	
Package	SMB (J-lead)	HF + UL94V0+RoHS +Pb free plating
Power	600W	10/1000 pulse
Tj	-65C~150C	
Tstg	-65C ~150C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2
IFSM	100A	8.3ms single half sine wave
VF max	3.5V	50A, single die

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
P6SMBJ90A	P6SMBJ90CA	SMB	1	100	111	90	1	4.1	146
P6SMBJ100A	P6SMBJ100CA	SMB	1	111	123	100	1	3.7	162
P6SMBJ110A	P6SMBJ110CA	SMB	1	122	135	110	1	3.4	177
P6SMBJ120A	P6SMBJ120CA	SMB	1	133	147	120	1	3.1	193
P6SMBJ130A	P6SMBJ130CA	SMB	1	144	159	130	1	2.9	209
P6SMBJ150A	P6SMBJ150CA	SMB	1	167	185	150	1	2.5	243
P6SMBJ160A	P6SMBJ160CA	SMB	1	178	197	160	1	2.3	259
P6SMBJ170A	P6SMBJ170CA	SMB	1	189	209	170	1	2.2	275
P6SMBJ180A	P6SMBJ180CA	SMB	1	201	222	180	1	2.1	292
P6SMBJ190A	P6SMBJ190CA	SMB	1	209	231	190	1	2	304
P6SMBJ200A	P6SMBJ200CA	SMB	1	224	247	200	1	1.9	324
P6SMBJ220A	P6SMBJ220CA	SMB	1	246	272	220	1	1.7	356
P6SMBJ250A	P6SMBJ250CA	SMB	1	279	309	250	1	1.5	405



1000W TVS DIODES, P1KSMBJ SERIES



	SPEC	Requirement
Package	SMB (J-lead)	HF + UL94V0+RoHS +Pb free plating
Power	1000W	10/1000 pulse
Tj	-65C~150C	
Tstg	175C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2
IFSM	120A	8.3ms single half sine wave
VF max	3.5V	50A, single die

Uni-direction	Bi-direction	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
P1KSMBJ6.8A	P1KSMBJ6.8CA	10	6.45	7.14	5.8	900	95.2	10.5
P1KSMBJ7.5A	P1KSMBJ7.5CA	10	7.13	7.88	6.4	400	88.5	11.3
P1KSMBJ8.2A	P1KSMBJ8.2CA	10	7.79	8.61	7.02	180	82.6	12.1
P1KSMBJ9.1A	P1KSMBJ9.1CA	1	8.65	9.55	7.78	45	74.6	13.4
P1KSMBJ10A	P1KSMBJ10CA	1	9.5	10.5	8.55	8	69	14.5
P1KSMBJ11A	P1KSMBJ11CA	1	10.5	11.6	9.4	4	64.1	15.6
P1KSMBJ12A	P1KSMBJ12CA	1	11.4	12.6	10.2	1	59.9	16.7
P1KSMBJ13A	P1KSMBJ13CA	1	12.4	13.7	11.1	1	54.9	18.2
P1KSMBJ15A	P1KSMBJ15CA	1	14.3	15.8	12.8	1	47.2	21.2
P1KSMBJ16A	P1KSMBJ16CA	1	15.2	16.8	13.6	1	44.4	22.5
P1KSMBJ18A	P1KSMBJ18CA	1	17.1	18.9	15.3	1	39.2	25.5
P1KSMBJ20A	P1KSMBJ20CA	1	19	21	17.1	1	36.1	27.7
P1KSMBJ22A	P1KSMBJ22CA	1	20.9	23.1	18.8	1	32.7	30.6
P1KSMBJ24A	P1KSMBJ24CA	1	22.8	25.2	20.5	1	30.1	33.2
P1KSMBJ27A	P1KSMBJ27CA	1	25.7	28.4	23.1	1	26.7	37.5
P1KSMBJ30A	P1KSMBJ30CA	1	28.5	31.5	25.6	1	24.2	41.4
P1KSMBJ33A	P1KSMBJ33CA	1	31.4	34.7	28.2	1	21.9	45.7
P1KSMBJ36A	P1KSMBJ36CA	1	34.2	37.8	30.8	1	20	49.9
P1KSMBJ39A	P1KSMBJ39CA	1	37.1	41	33.3	1	18.6	53.9
P1KSMBJ43A	P1KSMBJ43CA	1	40.9	45.2	36.8	1	16.9	59.3
P1KSMBJ47A	P1KSMBJ47CA	1	44.7	49.4	40.2	1	15.4	64.8
P1KSMBJ51A	P1KSMBJ51CA	1	48.5	53.6	43.6	1	14.3	70.1
P1KSMBJ56A	P1KSMBJ56CA	1	53.2	58.8	47.8	1	13	77
P1KSMBJ62A	P1KSMBJ62CA	1	58.9	65.1	53	1	11.8	85
P1KSMBJ68A	P1KSMBJ68CA	1	64.6	71.4	58.1	1	10.9	92
P1KSMBJ75A	P1KSMBJ75CA	1	71.3	78.8	64.1	1	9.7	103
P1KSMBJ82A	P1KSMBJ82CA	1	77.9	86.1	70.1	1	8.8	113
P1KSMBJ91A	P1KSMBJ91CA	1	86.5	95.5	77.8	1	8	125
P1KSMBJ100A	P1KSMBJ100CA	1	95	105	85.5	1	7.3	137

1500W TVS DIODES, SMCJ SERIES



	SPEC	Requirement
Package	SMC	HF + UL94V0+RoHS +Pb free plating
Power	1500W	10/1000 pulse
Tj	-65C~150C	
Tstg	175C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
SMCJ5.0A	SMCJ5.0CA	SMC	10	6.45	6.98	5	400	163	9.2
SMCJ6.0A	SMCJ6.0CA	SMC	10	6.8	7.32	6	400	145.7	10.3
SMCJ6.5A	SMCJ6.5CA	SMC	10	7.27	7.92	6.5	250	134	11.2
SMCJ7.0A	SMCJ7.0CA	SMC	10	7.82	8.57	7	200	125	12
SMCJ8.0A	SMCJ8.0CA	SMC	1	8.95	9.76	8	100	110.3	13.6
SMCJ9.0A	SMCJ9.0CA	SMC	1	10.1	11	9	10	97.4	15.4
SMCJ10A	SMCJ10CA	SMC	1	11.21	12.19	10	5	88.3	17
SMCJ11A	SMCJ11CA	SMC	1	12.32	13.38	11	1	82.5	18.2
SMCJ12A	SMCJ12CA	SMC	1	13.43	14.57	12	1	75.4	19.9
SMCJ13A	SMCJ13CA	SMC	1	14.54	15.76	13	1	69.8	21.5
SMCJ14A	SMCJ14CA	SMC	1	15.75	17.04	14	1	64.7	23.2
SMCJ15A	SMCJ15CA	SMC	1	16.86	18.33	15	1	61.5	24.4
SMCJ16A	SMCJ16CA	SMC	1	17.93	19.56	16	1	57.7	26
SMCJ17A	SMCJ17CA	SMC	1	19.05	20.76	17	1	54.4	27.6
SMCJ18A	SMCJ18CA	SMC	1	20.19	21.9	18	1	51.4	29.2
SMCJ20A	SMCJ20CA	SMC	1	22.41	24.28	20	1	46.3	32.4
SMCJ22A	SMCJ22CA	SMC	1	24.63	26.66	22	1	42.3	35.5
SMCJ24A	SMCJ24CA	SMC	1	26.95	29.23	24	1	38.6	38.9
SMCJ26A	SMCJ26CA	SMC	1	29.12	31.67	26	1	35.7	42.1
SMCJ28A	SMCJ28CA	SMC	1	31.33	34.16	28	1	33.1	45.4
SMCJ30A	SMCJ30CA	SMC	1	33.55	36.54	30	1	31	48.4
SMCJ33A	SMCJ33CA	SMC	1	36.98	40.3	33	1	28.2	53.3
SMCJ36A	SMCJ36CA	SMC	1	40.3	43.9	36	1	25.9	58.1
SMCJ40A	SMCJ40CA	SMC	1	44.7	48.8	40	1	23.3	64.5
SMCJ43A	SMCJ43CA	SMC	1	48.2	52.4	43	1	21.7	69.4
SMCJ45A	SMCJ45CA	SMC	1	50.4	54.9	45	1	20.6	72.7
SMCJ48A	SMCJ48CA	SMC	1	53.8	58.4	48	1	19.4	77.4
SMCJ51A	SMCJ51CA	SMC	1	57.2	62.1	51	1	18.2	82.4
SMCJ54A	SMCJ54CA	SMC	1	60.5	65.7	54	1	17.3	87.1
SMCJ58A	SMCJ58CA	SMC	1	65	70.6	58	1	16.1	93.6
SMCJ60A	SMCJ60CA	SMC	1	67.3	73	60	1	15.5	96.8
SMCJ64A	SMCJ64CA	SMC	1	71.6	78	64	1	14.6	103
SMCJ70A	SMCJ70CA	SMC	1	78.5	85.2	70	1	13.3	113
SMCJ75A	SMCJ75CA	SMC	1	83.9	91.5	75	1	12.4	121
SMCJ78A	SMCJ78CA	SMC	1	87.4	95.1	78	1	11.9	126
SMCJ85A	SMCJ85CA	SMC	1	95.1	103.2	85	1	11	137

3000W TVS DIODES, SMDJ SERIES



	SPEC	Requirement
Package	SMC(J lead)	HF + UL94V0+RoHS +Pb free plating
Power	3000W	10/1000 pulse
Tj	-65C~150C	
Tstg	150C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
SMDJ9.0A	SMDJ9.0CA	SMC	1	10.1	11	9	10	194.8	15.4
SMDJ10A	SMDJ10CA	SMC	1	11.21	12.19	10	3.5	176.5	17
SMDJ11A	SMDJ11CA	SMC	1	12.32	13.33	11	2	164.8	18.2
SMDJ12A	SMDJ12CA	SMC	1	13.48	14.57	12	2	150.8	19.9
SMDJ13A	SMDJ13CA	SMC	1	14.54	15.76	13	2	139.5	21.5
SMDJ14A	SMDJ14CA	SMC	1	15.75	17.04	14	2	129.3	23.2
SMDJ15A	SMDJ15CA	SMC	1	16.86	18.33	15	2	123	24.4
SMDJ16A	SMDJ16CA	SMC	1	17.94	19.56	16	2	115.4	26
SMDJ17A	SMDJ17CA	SMC	1	19.04	20.75	17	2	108.7	27.6
SMDJ18A	SMDJ18CA	SMC	1	20.19	21.9	18	2	102.7	29.2
SMDJ20A	SMDJ20CA	SMC	1	22.41	24.28	20	2	92.6	32.4
SMDJ22A	SMDJ22CA	SMC	1	24.59	26.71	22	2	84.5	35.5
SMDJ24A	SMDJ24CA	SMC	1	26.9	29.18	24	2	77.1	38.9
SMDJ26A	SMDJ26CA	SMC	1	29.12	31.68	26	2	71.3	42.1
SMDJ28A	SMDJ28CA	SMC	1	31.34	34.16	28	2	66.1	45.4
SMDJ30A	SMDJ30CA	SMC	1	33.6	36.59	30	2	62	48.4
SMDJ33A	SMDJ33CA	SMC	1	36.98	40.3	33	2	56.3	53.3
SMDJ36A	SMDJ36CA	SMC	1	40.3	43.9	36	2	51.6	58.1
SMDJ40A	SMDJ40CA	SMC	1	44.8	48.8	40	2	46.5	64.5
SMDJ43A	SMDJ43CA	SMC	1	48.2	52.4	43	2	43.2	69.4
SMDJ45A	SMDJ45CA	SMC	1	50.4	54.9	45	2	41.3	72.7
SMDJ48A	SMDJ48CA	SMC	1	53.7	58.5	48	2	38.8	77.4
SMDJ51A	SMDJ51CA	SMC	1	57.1	62.3	51	2	36.4	82.4
SMDJ54A	SMDJ54CA	SMC	1	60.5	65.8	54	2	34.4	87.1
SMDJ58A	SMDJ58CA	SMC	1	64.9	70.7	58	2	32.1	93.6
SMDJ60A	SMDJ60CA	SMC	1	67.2	73.2	60	2	31	96.8
SMDJ64A	SMDJ64CA	SMC	1	71.6	78	64	2	29.1	103
SMDJ70A	SMDJ70CA	SMC	1	78.4	85.4	70	2	26.5	113
SMDJ75A	SMDJ75CA	SMC	1	83.9	91.5	75	2	24.8	121
SMDJ78A	SMDJ78CA	SMC	1	87.4	95.1	78	2	23.8	126
SMDJ85A	SMDJ85CA	SMC	1	95.2	103.3	85	2	21.9	137

5000W TVS DIODES, 5.0SMDJ SERIES



	SPEC	Requirement
Package	SMC(J lead)	HF + UL94V0+RoHS +Pb free plating
Power	5000W	10/1000 pulse
Tj	-65C~150C	
Tstg	175C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2
IFSM	300A	8.3ms single half sine wave
VF max	5V	single die @100A

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
5.0SMDJ12A	5.0SMDJ12CA	SMC	1	13.3	14.7	12	1	252	19.9
5.0SMDJ13A	5.0SMDJ13CA	SMC	1	14.4	15.9	13	1	233	21.5
5.0SMDJ14A	5.0SMDJ14CA	SMC	1	15.6	17.2	14	1	216	23.2
5.0SMDJ15A	5.0SMDJ15CA	SMC	1	16.7	18.5	15	1	205	24.4
5.0SMDJ16A	5.0SMDJ16CA	SMC	1	17.8	19.7	16	1	193	26
5.0SMDJ17A	5.0SMDJ17CA	SMC	1	18.9	20.9	17	1	181	27.6
5.0SMDJ18A	5.0SMDJ18CA	SMC	1	20	22.1	18	1	172	29.3
5.0SMDJ20A	5.0SMDJ20CA	SMC	1	22.2	24.5	20	1	155	32.4
5.0SMDJ22A	5.0SMDJ22CA	SMC	1	24.4	26.9	22	1	141	35.5
5.0SMDJ24A	5.0SMDJ24CA	SMC	1	26.7	29.5	24	1	129	38.9
5.0SMDJ26A	5.0SMDJ26CA	SMC	1	28.9	31.9	26	1	119	42.1
5.0SMDJ28A	5.0SMDJ28CA	SMC	1	31.1	34.4	28	1	110	45.4
5.0SMDJ30A	5.0SMDJ30CA	SMC	1	33.3	36.8	30	1	103	48.4
5.0SMDJ33A	5.0SMDJ33CA	SMC	1	36.7	40.6	33	1	93.9	53.3
5.0SMDJ36A	5.0SMDJ36CA	SMC	1	40	44.2	36	1	86.1	58.1
5.0SMDJ40A	5.0SMDJ40CA	SMC	1	44.4	49.1	40	1	77.6	64.5
5.0SMDJ43A	5.0SMDJ43CA	SMC	1	47.8	52.8	43	1	72.1	69.4
5.0SMDJ45A	5.0SMDJ45CA	SMC	1	50	55.3	45	1	68.8	72.7
5.0SMDJ48A	5.0SMDJ48CA	SMC	1	53.3	58.9	48	1	64.7	77.4
5.0SMDJ51A	5.0SMDJ51CA	SMC	1	56.7	62.7	51	1	60.7	82.4
5.0SMDJ54A	5.0SMDJ54CA	SMC	1	60	66.3	54	1	57.5	87.1
5.0SMDJ58A	5.0SMDJ58CA	SMC	1	64.4	71.2	58	1	53.5	93.6
5.0SMDJ60A	5.0SMDJ60CA	SMC	1	66.7	73.7	60	1	51.7	96.8
5.0SMDJ64A	5.0SMDJ64CA	SMC	1	71.1	78.6	64	1	48.6	103
5.0SMDJ70A	5.0SMDJ70CA	SMC	1	77.8	86	70	1	44.3	113
5.0SMDJ75A	5.0SMDJ75CA	SMC	1	83.3	92.1	75	1	41.4	121
5.0SMDJ78A	5.0SMDJ78CA	SMC	1	86.7	95.8	78	1	39.7	126
5.0SMDJ85A	5.0SMDJ85CA	SMC	1	94.4	104	85	1	36.5	137
5.0SMDJ90A	5.0SMDJ90CA	SMC	1	100	111	90	1	34.3	146
5.0SMDJ100A	5.0SMDJ100CA	SMC	1	111	123	100	1	30.9	162
5.0SMDJ110A	5.0SMDJ110CA	SMC	1	122	135	110	1	28.3	177

5000W TVS DIODES, 5.0SMDJ SERIES



	SPEC	Requirement
Package	SMC(J lead)	HF + UL94V0+RoHS +Pb free plating
Power	5000W	10/1000 pulse
Tj	-65C~150C	
Tstg	175C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2
IFSM	300A	8.3ms single half sine wave
VF max	5V	single die @100A

Uni-direction	Bi-direction	Package	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
5.0SMDJ120A	5.0SMDJ120CA	SMC	1	133	147	120	1	26	193
5.0SMD130A	5.0SMD130CA	SMC	1	144	159	130	1	24	209
5.0SMDJ150A	5.0SMDJ150CA	SMC	1	167	185	150	1	20.6	243
5.0SMDJ160A	5.0SMDJ160CA	SMC	1	178	197	160	1	19.3	259
5.0SMDJ170A	5.0SMDJ170CA	SMC	1	189	209	170	1	18.2	275



6600W TVS DIODES, DO218 SERIES



	SPEC	Requirement
Package	SM8S(J lead)	HF + UL94V0+RoHS +Pb free plating
Power	6600W	10/1000 pulse
Tj	-65C~175C	
Tstg	175C	
ESD	30KV(Air) 30KV(contact)	IEC-61000-4-2
IFSM	700A	8.3ms single half sine wave
VF max		single die @100A

Uni-direction	Bi-direction	I _T (mA)	V _{BR} (V) --min.	V _{BR} (V) --max.	V _R (V)	I _R (uA) --max.	10/1000us Max peak pulse currnt I _{pp} (A)	10/1000us max clamp voltage V _c @ I _{pp} (V)
SM8S10A	SM8S10CA	5	11.1	12.3	10	15	388	17
SM8S11A	SM8S11CA	5	12.2	13.5	11	10	363	18.2
SM8S12A	SM8S12CA	5	13.3	14.7	12	10	332	19.9
SM8S13A	SM8S13CA	5	14.4	15.9	13	10	307	21.5
SM8S14A	SM8S14CA	5	15.6	17.2	14	10	284	23.2
SM8S15A	SM8S15CA	5	16.7	18.5	15	10	270	24.4
SM8S16A	SM8S16CA	5	17.8	19.7	16	10	254	26
SM8S17A	SM8S17CA	5	18.9	20.9	17	10	239	27.6
SM8S18A	SM8S18CA	5	20	22.1	18	10	226	29.2
SM8S20A	SM8S20CA	5	22.2	24.5	20	10	204	32.4
SM8S22A	SM8S22CA	5	24.4	26.9	22	10	186	35.5
SM8S24A	SM8S24CA	5	26.7	29.5	24	10	170	38.9
SM8S26A	SM8S26CA	5	28.9	31.9	26	10	157	42.1
SM8S28A	SM8S28CA	5	31.1	34.4	28	10	145	45.4
SM8S30A	SM8S30CA	5	33.3	36.8	30	10	136	48.4
SM8S33A	SM8S33CA	5	36.7	40.6	33	10	124	53.3
SM8S36A	SM8S36CA	5	40	44.2	36	10	114	58.1
SM8S40A	SM8S40CA	5	44.4	49.1	40	10	102	64.5
SM8S43A	SM8S43CA	5	47.8	52.8	43	10	95.1	69.4

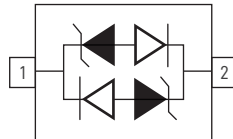
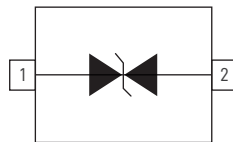
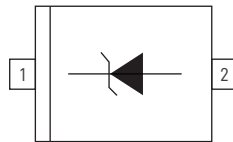
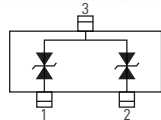
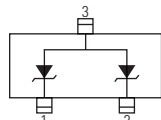
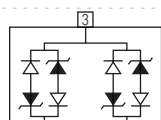
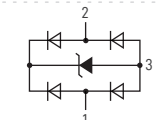
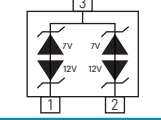
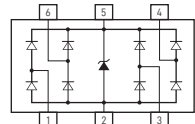


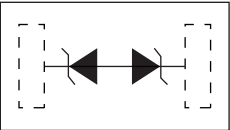
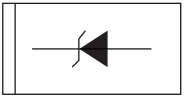
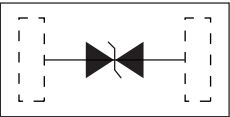
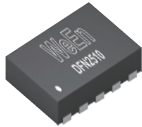
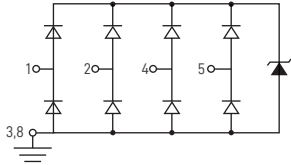
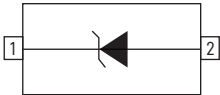


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06

Electro-Static
Discharge Diodes

Part No.	Package outline	V _{RWM} (V)	V _{BR} (Min)	I _{PP} @8/20μs (A)	V _{CL} @I _{PP} (V)	I _{Rmax} @V _{RWM} (uA)	C _{Jmax} @0V/1 _{MHz} (pF)	P _{ppm} @8/20μs (W)	Diagram	
SOD323 Package :										
ESDALD03BC		3.3	4.5	20	20	1	0.8	400		
ESDALD05BC		5	6.5	15	21	1	0.8	315		
ESDALD08BC		8	8.5	15	25	1	0.8	375		
ESDALD12BC		12	13.3	10	35	1	0.8	350		
ESDALD15BC		15	16.5	8	45	1	0.8	360		
ESDALD18BC		18	19.0	8	44	1	0.8	352		
ESDALD24BC		24	26.0	6	55	1	0.8	330		
ESDALD36BC		36	38.0	3	70	1	0.8	210		
ESDHD03BC		3.3	3.6	25	16	1	150.0	400		
ESDHD05BC		5	6.0	24	18	1	120.0	432		
ESDHD08BC		8	8.5	28	24	1	110.0	672		
ESDHD12BC		12	13.3	13	32	1	70.0	416		
ESDHD15BC		15	16.5	10	38	1	40.0	380		
ESDHD18BC		18	20.0	8	45	1	35.0	360		
ESDHD24BC		24	26.7	7	52	1	30.0	364		
ESDHD03UC		3.3	4.0	30	18	1	300.0	540		
ESDHD05UC		5	6.0	30	20	1	300.0	600		
ESDHD12UC		12	13.3	15	35	1	150.0	525		
ESDHD15UC		15	16.3	10	45	1	120.0	450		
ESDHD24UC		24	26.0	6	55	1	80.0	330		
SOT23-3 Package :										
ESDAH05BE2		5	6.5	22	22	1	120	484		
ESDAH12BE2		12	13.3	16	19	1	70	304		
ESDAH24BE2		24	26	48	8	1	30	384		
ESDAH03UE2		3	4	20	15	1	195	300		
ESDAH05UE2		5	6	16	19	1	150	304		
ESDAH12UE2		12	13.3	11	32	1	120	352		
ESDAH24UE2		24	26	7	52	1	60	364		
ESDALD05BE2		5	6.5	15	21	0.2	0.8	315		
ESDALD05UE2		5	6.0	4	4	15	0.1	60		
ESDAH712BE2		12/7	13.3/7.5	19	30	20	75	570		
SOT23-6 Package :										
ESDALD05UD4			5	6.0	5.5	16	0.1	1	88	

Part No.	Package outline	V_{RWM} (V)	V_{BR} (Min)	$I_{PP}@8/20\mu s$ (A)	$V_{CL}@I_{PP}$ (V)	$I_{Rmax}@V_{RWM}$ (uA)	$C_{Jmax}@0V/1_{MHz}$ (pF)	$P_{ppm}@8/20\mu s$ (W)	Diagram
DFN1006 Package:									
ESDHD03BF		3.3	3.6	8	10	1	15.0	80	
ESDHD05BF		5	5.5	7	11	1	15.0	77	
ESDHD12BF		12	13.0	6	25	1	7.0	150	
ESDHD15BF		15	16.5	7	35	1	20.0	245	
ESDHD24BF		24	26.0	5	48	1	20.0	240	
ESDHD03UF		3.3	4.0	24	12	1	200.0	288	
ESDHD05UF		5	6.0	20	16	0.1	150 typ.	320	
ESDHD12UF		12	13.3	8	26	1	80.0	208	
ESDHD15UF		15	16.4	7	35	1	50.0	245	
ESDHD24UF		24	26.0	5	48	1	40.0	240	
ESDHD36UF		36	38.0	5	70	1	40.0	350	
ESDUD05BF		5	6.0	4	22	0.1	0.5	88	
DFN2510 Package:									
ESDALD05UG4		5	6.0	4	15	0.1	1	60	
SOD523 Package:									
ESDHD03BB		3.3	3.7	10	9	1	15	90	
ESDHD05BB		5	5.6	9	10	1	15	90	
ESDHD03UB		3.3	4.0	25	12	1	180.0	300	
ESDHD05UB		5	5.9	16	15	1	160.0	240	
ESDHD12UB		12	13.3	7	30	1	80.0	210	
ESDHD15UB		15	16.5	6	35	1	40.0	210	
ESDHD24UB		24	25.9	4	48	1	30.0	192	
ESDHD36UB		36	38.0	3	70	1	20.0	210	



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07

Insulated Gate
Bipolar Transistors

650V IGBT

1200V IGBT

1350V IGBT

650V IGBT

Fast Speed and High Speed

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

I _c (max)@100°C (A)	V _{CE(max)} (V)	V _{CE(sat)} (typ.)@25°C (V)	E _{off} (typ.)@25°C (mJ)	E _{on} (typ.)@25°C (mJ)	Q _{rr} (typ.)@25°C (mC)	T0247-3L	T03PF	T0220-3L
								
75	650	1.5	1.5			WG75N65MAW1		
75	650	1.6	1.2			WG75N65MAW1		
50	650	1.65	0.6	1.7	570	WG50N65DHW		
50	650	1.65	0.6	1.7	570		WG50N65DHJ	
50	650	1.25	1.55	2.04	646		WG50N65LDJ1	
50	650	1.48	1	1.8	646	WG50N65MDW1		
50	650	1.59	0.75	1.8	646	WG50N65HDW1		
40	650	1.5	1	1.7	646	WG40N65DFW		
40	650	1.5	1	1.7	646		WG40N65DFJ	
30	650	1.55	0.45	0.68	646	WG30N65HDW1		
30	650	1.55	0.45	0.68	646	WG30N65HDX1		
20	650	1.42	0.4	0.61	646			WG20N65MDX1

1200V IGBT

Fast Speed and High Speed

Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

I _c (max)@100°C (A)	V _{CE(max)} (V)	V _{CE(sat)} (typ.)@25°C (V)	E _{off} (typ.)@25°C (mJ)	E _{on} (typ.)@25°C (mJ)	Q _{rr} (typ.)@25°C (mC)	T0247-3L
						
40	1200	2	1.3			WG40N120MDW1
25	1200	1.9	0.9			WG25N120MDW1
15	1200	1.8	0.45			WG15N120MDW1

1350V IGBT

Fast Speed and High Speed

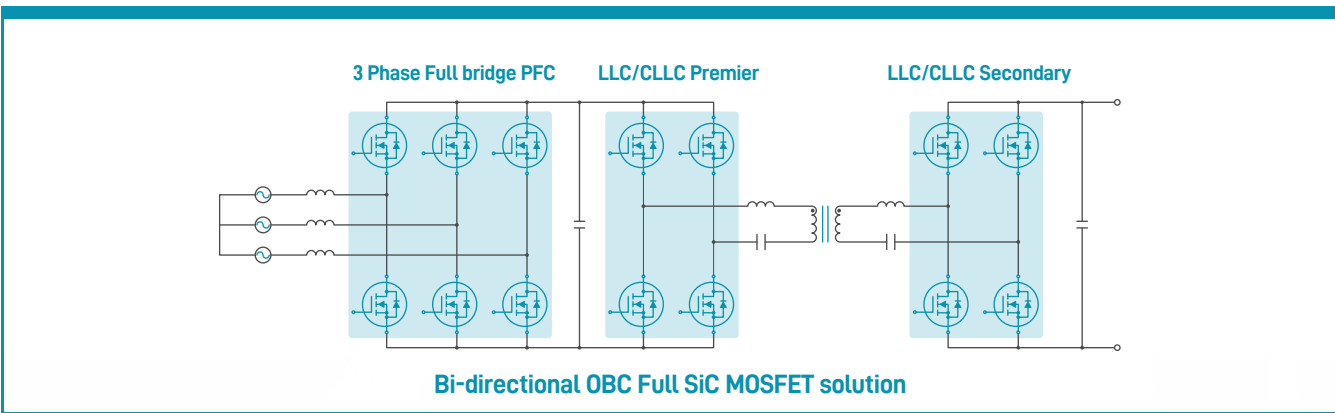
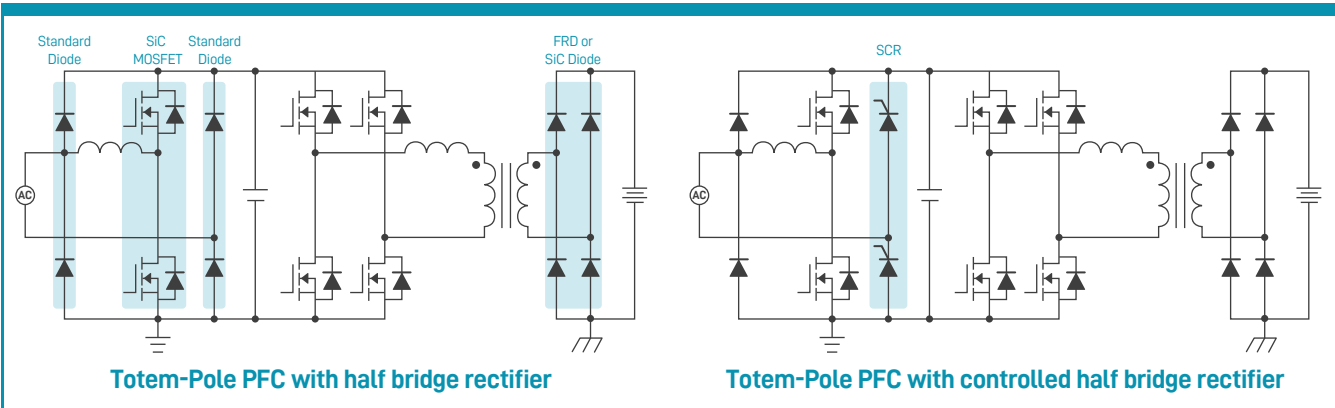
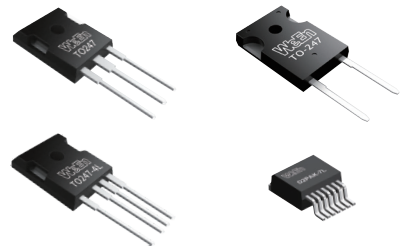
Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

I _c (max)@100°C (A)	V _{CE(max)} (V)	V _{CE(sat)} (typ.)@25°C (V)	E _{off} (typ.)@25°C (mJ)	E _{on} (typ.)@25°C (mJ)	Q _{rr} (typ.)@25°C (mC)	T0247-3L
						
25	1350	2	1.0			WG25N135RW1
15	1350	1.9	0.75			WG15N135RW1

WeEn Products for EV On Board Charger

Automotive Grade, AEC-Q101 qualified

- Fast Switching Silicon Diodes $T_{j(max)}$ 175°C
- High Efficiency Silicon Carbide Diodes $T_{j(max)}$ 175°C
- High Current SCRs $T_{j(max)}$ 150°C
- High power density Silicon Carbide MOSFET $T_{j(max)}$ 175 °C



Types in **bold blue** represent new products
Types in **bold red italic** represent products in development

Standard Diodes	FRD	SCR	SiC Diode	SiC MOSFET
WND35P12B-A	BYC30W-600PT2-A	BT153B-1200T-A	WNSC6D10650BT2-A	<i>WNSC2M20120B7 / R-A</i>
WND45P12W-A	<i>BYV30B-600P-A</i>	BT155W-1200T-A	WNSC6D20650W-A	<i>WNSC2M40120B7 / R-A</i>
WND60P12W-A	<i>BYV30W-600PT2-A</i>		WNSC6D30650CW-A	<i>WNSC2M75120B7 / R-A</i>
	<i>BYV60W-600PT2-A</i>		WNSC6D40650CW-A	<i>WNSC2M1K0170B7 / W-A</i>
	<i>BYV75W-600PT2-A</i>		<i>WNSC2D201200BT2-A</i>	

WeEn Products for EV Charger

PFC stage

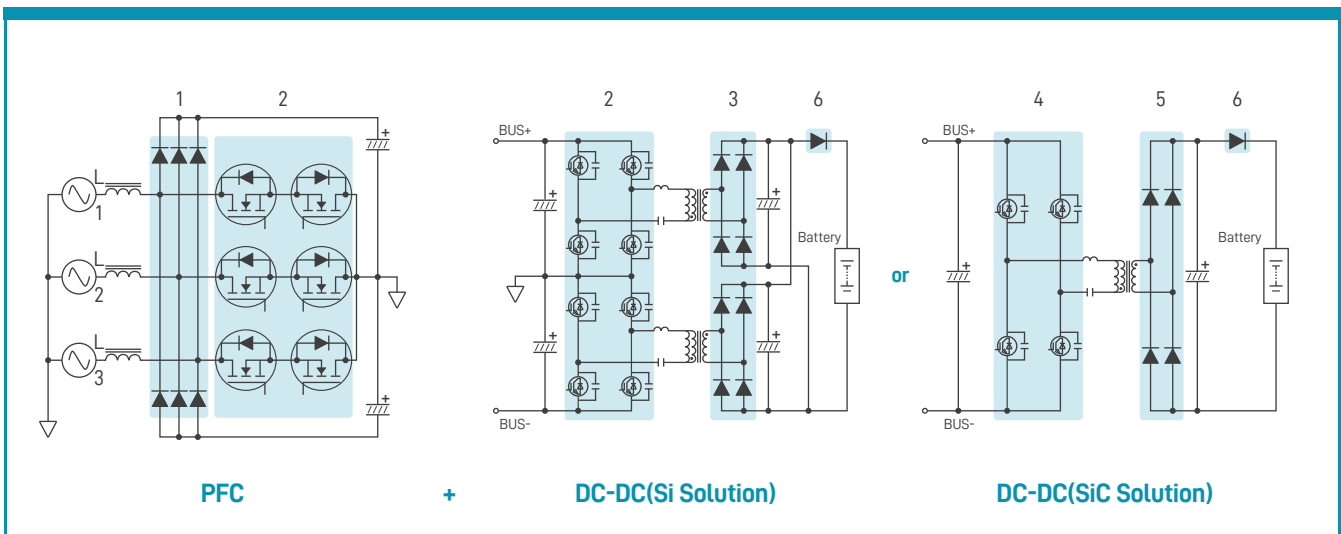
- 1200V/30A~100A Hyper Fast FRD Series with soft fast recovery improve efficiency
- 600V/650V super junction MOSFETs with Superior $R_{DS(on)}$ * Q_g
- 1200V / 15~30A SiC SBD will lead to higher efficiency.
- 1200V SiC MOSFET (Discrete and PIM) is available for a 3-phase full bridge PFC topology.

DC-DC Primary

- 600V/650V super junction MOSFETs 20mΩ~99mΩ with Superior $R_{DS(on)}$ * Q_g and Integrated ultrafast body diode
- 1200V / 12~150mΩ SiC MOSFET(Discrete and PIM) is available for LLC primary, high frequency and low $R_{DS(on)}$ help to save the space.

DC-DC Secondary

- 600V / 30A~75A Hyper Fast Series with Avalanche ruggedness and Lower leakage current
- 650V / 30~40A SiC SBD, with low VF and almost no Qrr, leads to higher efficiency.
- 1200V / 12~150mΩ SiC MOSFET (Discrete and PIM) is available for synchronous rectifier or Bi-directional converter.



WeEn Solution for EV Charger

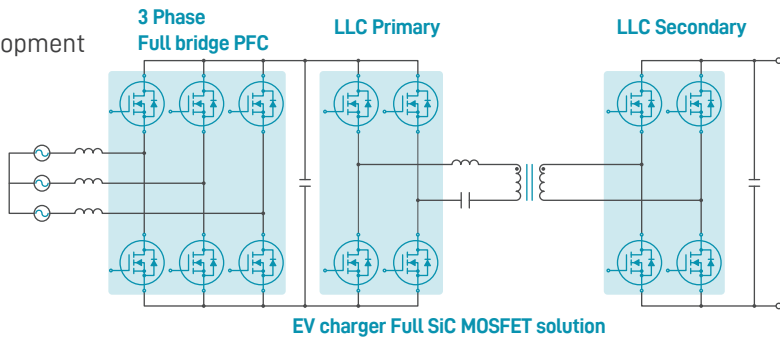
Types in **bold red italic** represent products in development

1-PFC Diodes	2-PFC & DC/DC Super Junction MOSFETs	3-DC/DC Diodes	5 SiC Diodes	6 Anti-Reverse Connected Diodes
BYC30W-1200P	<i>WSJT60R028DW</i>	BYC30W-600PT2	WNSC2D151200W	WND45P16W
BYC40W-1200P	<i>WSJM65R044DW</i>	BYC30W-600P	WNSC2D201200W	WND60P16W
BYC60W-1200P	<i>WSJT65R075DW</i>	BYC60W-600P	WNSC2D201200W-B	WND35P12B
BYC75W-1200P	<i>WSJM65R099DW</i>	BYC75W-600P	WNSC2D301200W	
BYC100W-1200P	<i>WSJM65R099D</i>	BYC75W-600PT2	WNSC6D30650W	

Pure SiC solution

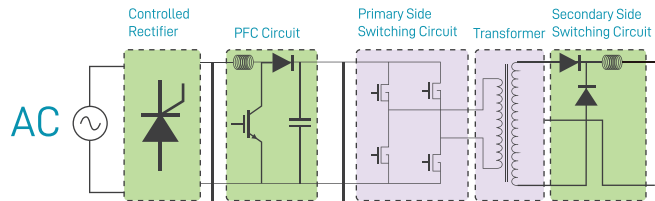
Types in **bold red italic** represent products in development

SiC MOSFET	Pure SiC PIM
WNSC2M75120B7 / R	<i>WMSC020F12B1P / S</i>
WNSC2M40120B7 / R	<i>WMSC020S12B1P / S</i>
WNSC2M20120B7 / R	<i>WMSC008H12B2P / S</i>
WNSC2M1K0170B7 / W	WMSC020H12B1P / S

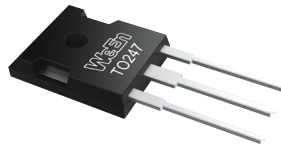


WeEn High Voltage 1600V SCRs
1600V/50A & 1600V/80A, Planar Passivated

Applications



- Uninterruptible Power Supply (UPS)
- Solid State Relay (SSR)
- Battery Charger
- AC Motor control / DC motor control
- Lighting and temperature control



WeEn Products in Smart Home

Coffee Machine



- Planar passivated technology, high $T_{j(max)}$ 150°C capability for better heating control
- BTA316Y-800CT used for heating element control
- TOPT16-800C0 used for heating element control with over temp. protection function embedded

Air Conditioner



- Platinum-doping Fast Recovery Diodes
- BYC30JT-600PS
- BYC30X-600PS soft FRD for PFC
- BYV30JT-600P, BYC30X-600P, BYV415W-600P
- BYV415J-600P for traditional PFC

Key Features and Benefits

- Very High Voltage Block capability up to 1600V
- High junction operating temperature $T_{j(max)}=150^{\circ}C$
- Very high current surge capability
- Planar passivated for voltage ruggedness and reliability
- High thermal cycling performance
- Low forward voltage drop
- Enables the control of peak current at power supply switch-on, limits the use of mechanical relay to extend system life time

Product

Product	Package
TYN50W-1600T	TO-247
TYN80W-1600T	TO-247

Key Parameters

Parameters	TYN50W-1600T	TYN80W-1600T
Package	TO-247	TO-247
$I_{T(AV)}$	50A	80A
$I_{T(RMS)}$	79A	126A
V_{DRM}	1600V	1600V
I_{GT}	80mA max	80mA max
I_{TSM}	650A @ 10ms	850A @ 10ms
$T_{j(max)}$	150°C	150°C
dI_t/dt	150A/us	150A/us
dV_G/dt	1500V/ μ s @150°C	1000V/ μ s @150°C

Washing Machine



- Planar Passivated technology with the best false trigger capability
- BTA201W-800E used for Valve control
- BTA416Y-800C used for drum motor control

Dishwasher

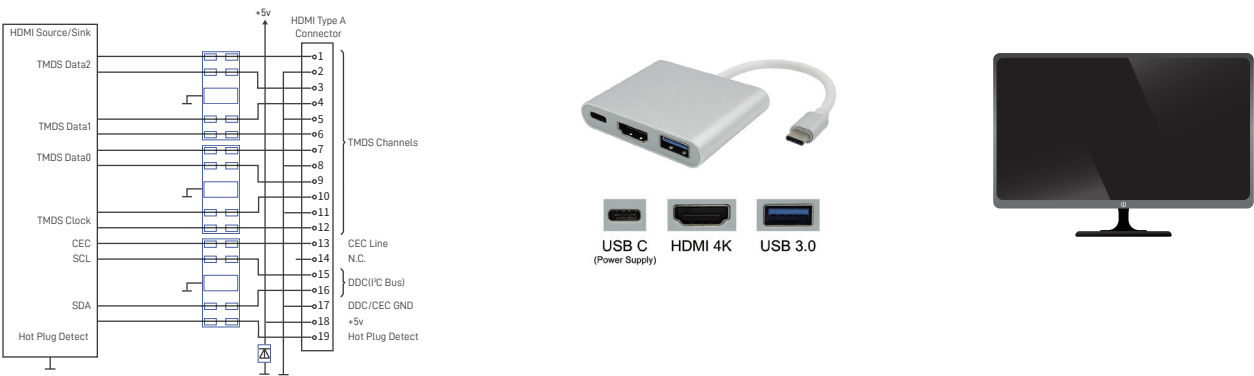


- Planar passivated ACT/ACTT series with over-voltage clamp function
- ACT108W-800E used for water inlet valve control
- ACTT4S-800E used for water extraction pump control

ESD diodes solution for high speed interface

TVS diodes solution

Applications



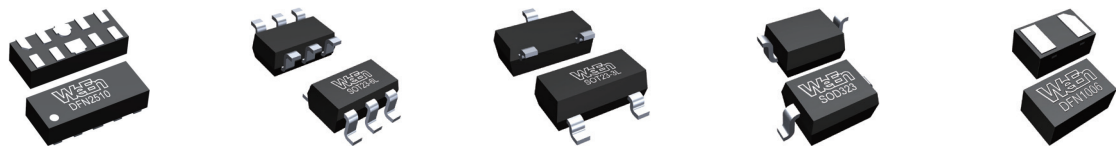
Product	Package
ESDALD05UG4	DFN2510
ESDUD05BF	DFN1006
ESDALD03BC	SOD323
ESDALD05BC	SOD323
ESDALD05UE2	SOT23-3L
ESDALD05BE2	SOT23-3L
ESDALD05UD4	SOT23-6L

- HDMI
- USB2.0/3.0
- Display Port
- Digital Visual Interfaces(DVI)

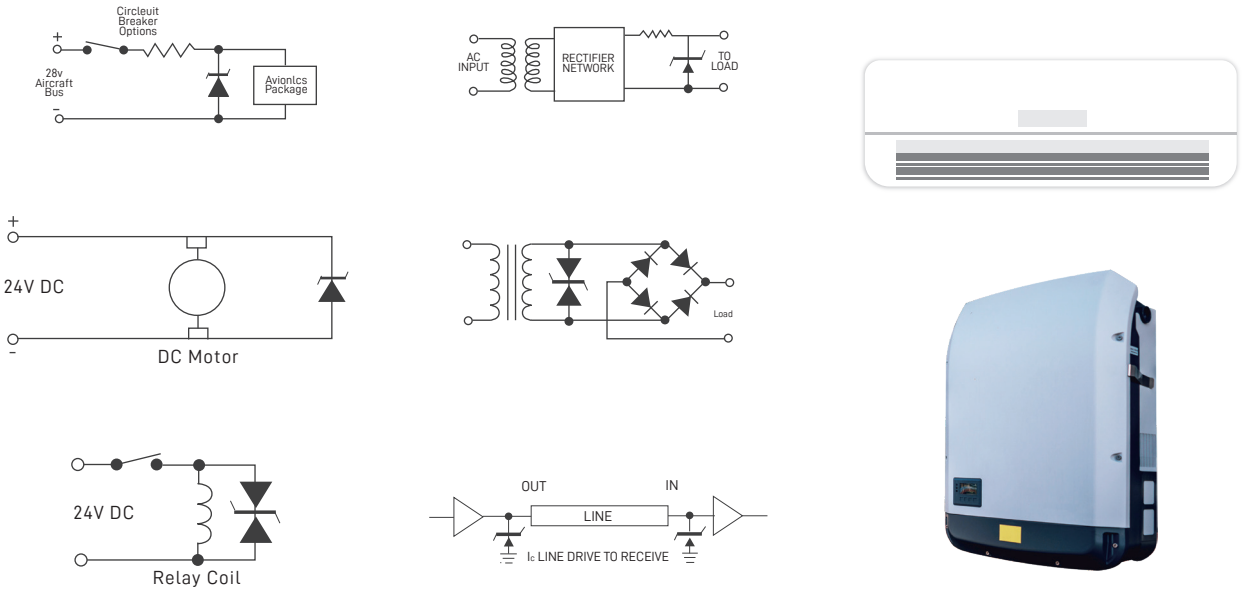
Key Features and Benefits

- Transient protection for high-speed data lines
- Peak pulse power up to 350W @ 8/20 μs waveform
- IEC 61000-4-2 (ESD) up to ±30kV(air), ±30kV(contact)
- Low capacitance
- Low leakage current
- Low clamping voltage
- Halogen free and RoHS compliant

Parameters	Value
Package	DFN2510 / DFN1006 / SOD323 / SOT23-3L/ SOT23-6L
V_{RWM}	3.3V / 5V
I_R	100nA / 1uA
$C_{j(typ)}$	0.2pF / 0.5pF/ 0.6pF / 0.8pF
P_{PPM}	60W / 88W / 300W/ 350W
I_{pp}	4A / 5.5A / 15A / 20A
$V_c (typ)$	15V / 16V/ 20V / 21V / 22V



Applications



Parameters	Package
Package	SOD123 / SMA / SMB / SMC/DO218
V_{RWM}	5V ~250V
I_R	1uA
P_{PPM}	200W/400W/600W/1000W/1500W/3000W/6600W

- Solar Application
- DC Motor
- Home appliance
- Industrial application

Key Features and Benefits

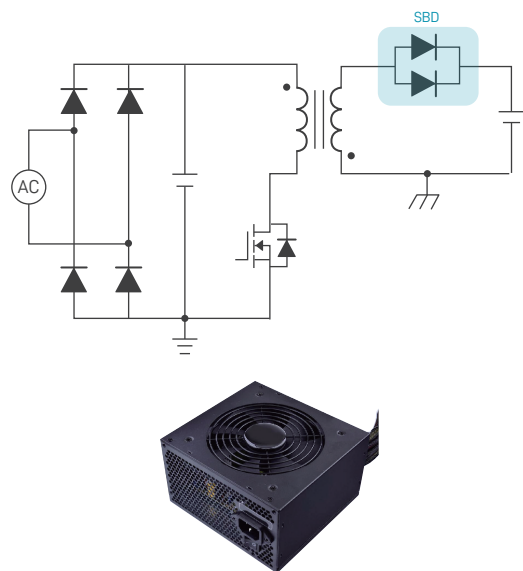
- Fast response time: Typically less than 1.0ps from 0V to BV min
- Peak pulse power 200W~6600W@10/1000μs waveform
- IEC 61000-4-2 (ESD) ±30kV(air), ±30kV(contact)
- Excellent clamping capability
- Low leakage current
- Low incremental surge resistance
- Halogen free and RoHS compliant

Family	Package	Power
SODxx(C)A	SOD123	2200W
P4SODxx(C)A	SOD123	400W
SMAJxx(C)A	SMA	400W
P6SMALxxA	SMAL	600W
P6SMBJxx(C)A	SMB	600W
P1KSMBJxx(C)A	SMB	1000W
SMCJxx(C)A	SMC	1500W
SMDJxx(C)A	SMC	3000W
SM8Sxx(C)A	DO218	6600W



Si diodes solution for low power supply

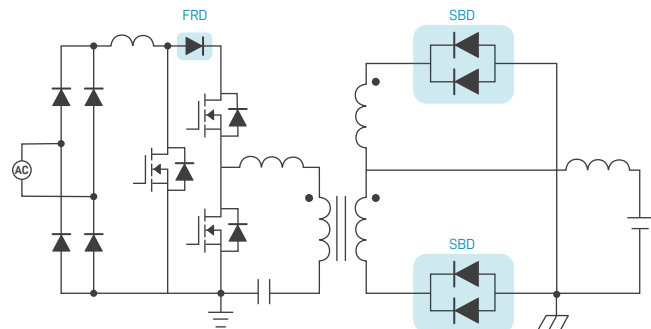
Flyback Power Supply



- Computer power for CPU
- Charger for consumer electronics
- Aux power for UPS
- Aux power for EV charger



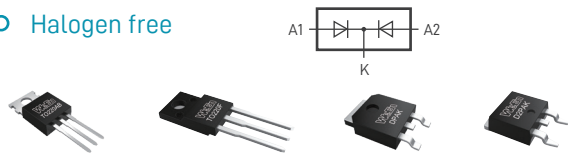
TV Power Supply



- BYV series FRD suit for DCM Boost PFC;
- LLC realizing high efficiency rectifier output;
- Low V_F SBD suit for secondary rectifier output;

Solution Overview

- Voltage:45V~200V
- Current:10A ~40A
- Packages:T0220 / T0220F / DPAK / D2PAK Configuration: Dual die, common cathode
- Halogen free



WeEn SBD Part

T0220	DPAK	T220F	D ² PAK
WN3S20H100C	WN3S10H200CDT	WN3S20H100CX	WN3S30H170CBT
WN3S30H100C	WN3S20200DT	WN3S30H100CX	WN3S40170CBT
WN3S40H100C	WN3S30200DT	WN3S40H100CX	WNS20H100CB
WN3S20H45C	WN3S20100D	WN3S20H45CX	WNS30H100CB
WN3S30H45C	WN3S30100D	WN3S30H45CX	WNS40H100CB

WeEn SBD Part

T0220	DPAK
WN3S10100C	WN3S10S200CDT
WNS20S100C	WN3S10200CDT
WNS20H100C	WN3S10H200CDT
WN3S20H100C	WN3S20200CDT
WNS30H100C	WN3S20200DT
WN3S30100C	WN3S20100D
WN3S30H100C	WN3S30100D

WeEn FRD Part

T0220F	DPAK
BYV10MX-600P	BYV10MD-650P

What is G3 Schottky Diode

By proper design and process optimization, G3 Schottky diodes can be used in DC-DC converters and other SMPS.

- With state of art trench technology, lower V_F is achieved.
- Negligible switch loss is achieved.
- Reduced reverse leakage current and improve its long-term reliability.

Key Features and Benefits

- Ultra-low On-state voltage V_F
- Low leakage current
- Rugged avalanche capability
- Higher I_{FSM} capability
- $T_{j(max)}$ 150°C and 175°C

1200V G2 and 650V G6 advanced SiC DIODE

WeEn introduced the first SiC diodes in 2015. The latest 6th gen SiC diodes technology represents our continued investments in innovation and R&D, offering best-in-class improvements in forward voltage drop (V_F) and inrush current capability (I_{FSM}). WeEn offers a full range of SiC diodes, 650V diodes from 1A to 40A and 1200V diodes from 2A to 50A in a wide variety of packages.

Topology

Single / Interleave PFC, Totem pole PFC, Vienna PFC, Output Bridge Rectifier, Micro Inverter Secondary Sectifier etc.

Boost PFC & DCDC rectifier

Totem pole PFC

Micro Inverter Rectifier

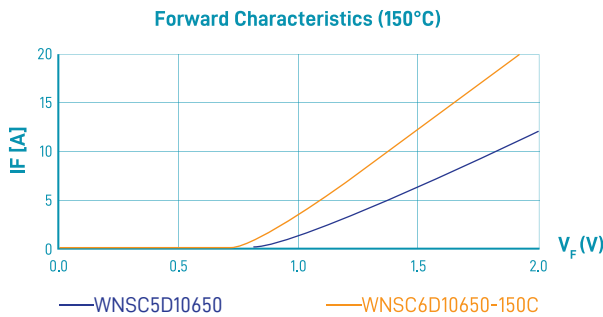
Applications

On Board Charger	Battery Formating
EV HV-LV DCDC	Server Power
Charging Piles	Data Center
Moto Driver	LED Lighting
PV and ESS	Air Conditioning
Telecom	UPS

Key Features and Benefits

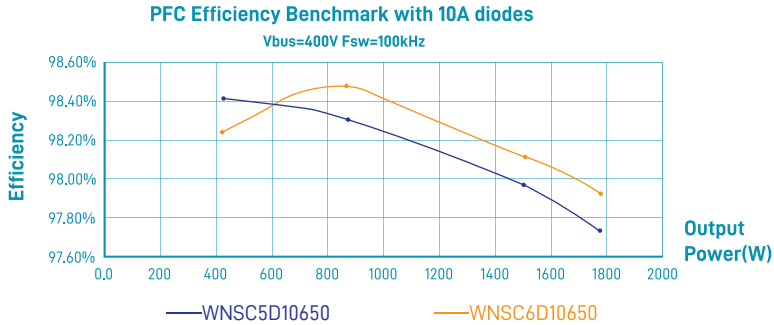
- State-of-art 6th generation for 650V SiC Diodes
- State-of-art 2th generation for 1200V SiC Diodes
- Ultra-Low V_f
- Low reverse leakage current
- Low thermal resistance
- High surge capability

The Advantage of G6 SiC Diodes – Low V_F



○ Compare with previous generation, the 6th generation SiC diodes give ~25% lower On-state-Voltage drop V_F under high temp. 150°C

The Advantage of G6 SiC Diodes – High Efficiency



○ Compare with previous generation, the 6th generation gives about 0.2% efficiency improvement under the same application condition by just replace the SiC diode

1200V and 1700V SiC MOSFET

Topology

Photovoltaic Inverter

11kW bi-directional 3 phase on board charger

Applications

xEV (Main inverter+OBC+DC-DC)	PFC/Power Supply
PV+ESS	Rail(including auxiliary power)
xEV Charging Infrastruetyre	UPS
Motor Drive (including air conditioning)	Wind

KeyFeatures

- Excellent RDS(on) performance at high temperature
- Enables high efficiency application
- Safe threshold and transfer characteristics optimization balance
- Low Ron,sp specific resistance, advanced technology
- Easy to drive by chip design
- Package with Kelvin source available

Excellent RDS(on)performance in whole temperature range e.g. WNSCM80120W

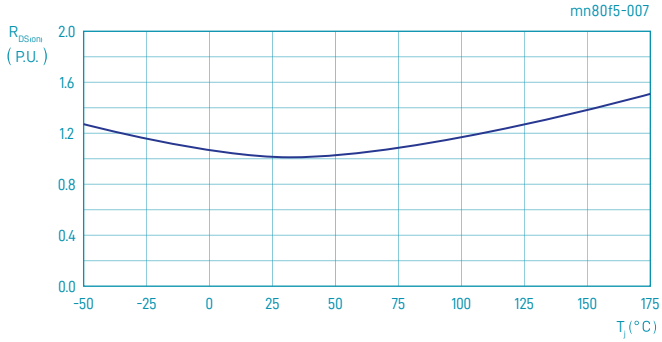
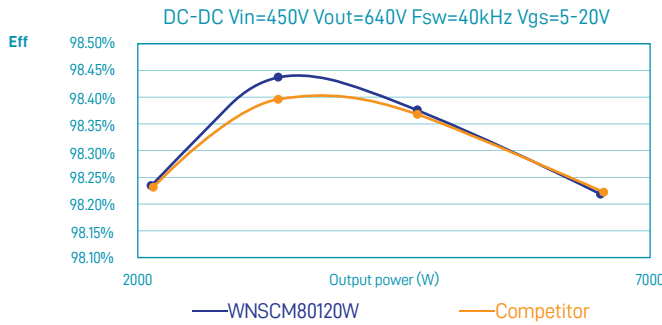
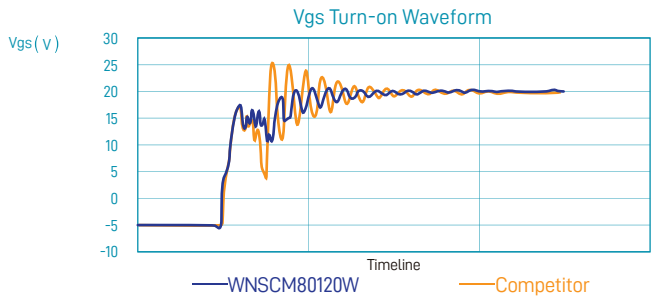


Fig.7. Normalized drain-source on-state resistance as a function of junction temperature

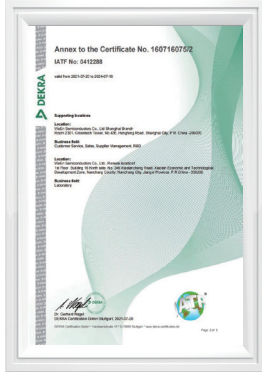
High product Efficiency



Easy to drive by chip design



Certifications



CNAS

IATF 16949



ISO 9001

ISO 45001



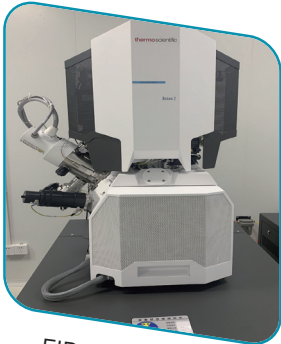
ISO 14001

QC 080000

WeEn Reliability & Failure Analysis Laboratory

Items of Reliability Test and Failure Analysis

Reliability Test	Failure Analysis
ESD test (HBM/MM) test	NTD
High temperature storage test	Automatic Test
Low temperature storage test	I-V Curve Tracer
Temperature cycle (Air to Air) test	Failure Site Localization
High temperature reverse bias test	Ultrasonic Scanning Microscope Analysis
High temperature gate bias test	Optical Microscope
High temp Operating life test	Scanning Electron Microscope
Reverse bias tropical test	Focused Ion Beam
Thermal fatigue test	Energy Dispersive Spectrometer
Unbiased highly accelerated stress test	Fault Isolation
Autoclave (Pressure cooker) test	Surface Texture
Highly accelerated stress test	X-ray (2D&3D)
Hot test	Chemical De-capsulation
Solder Heat test	Laser De-capsulation
Solderability test	3D Optical Microscope
High temperature forward bias test	Probe test
Highly accelerated stress test	Cross-section/Polisher



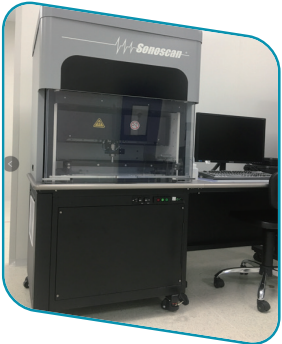
FIB & SEM & EDX



X-RAY



Tesec



C-SAM



Temperature Cycle



UHASt & PPOT



Reverse bias tropical



ESD(HBM & MM)