

# DATA SHEET

## **BT152B series** Thyristors

Product specification

January 2026



**WeEn**

WeEn Semiconductors

**Thyristors**

**BT152B series**

**GENERAL DESCRIPTION**

Planar passivated thyristors in a plastic envelope suitable for surface mounting, intended for use in applications requiring high bidirectional blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting, heating and static switching.

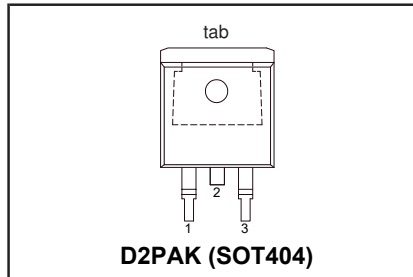
**QUICK REFERENCE DATA**

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
$V_{DRM}$ , $V_{RRM}$	<b>BT152B-</b> Repetitive peak off-state voltages	<b>400R</b> 450	<b>600R</b> 650	<b>800R</b> 800	V
$I_{T(AV)}$	Average on-state current	13	13	13	A
$I_{T(RMS)}$	RMS on-state current	20	20	20	A
$I_{TSM}$	Non-repetitive peak on-state current	200	200	200	A

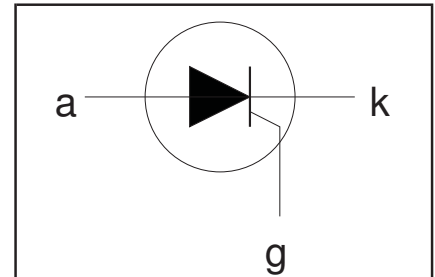
**PINNING - SOT404**

PIN	DESCRIPTION
1	cathode
2	anode
3	gate
mb	anode

**PIN CONFIGURATION**



**SYMBOL**



**LIMITING VALUES**

Limiting values in accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
				-400R 450 <sup>1</sup>	-600R 650 <sup>1</sup>	-800R 800	
$V_{DRM}$	Repetitive peak off-state voltages		-				V
$I_{T(AV)}$	Average on-state current	half sine wave; $T_{mb} \leq 103\text{ }^\circ\text{C}$	-	13			A
$I_{T(RMS)}$	RMS on-state current	all conduction angles	-	20			A
$I_{TSM}$	Non-repetitive peak on-state current	half sine wave; $T_j = 25\text{ }^\circ\text{C}$ prior to surge $t = 10\text{ ms}$	-	200			A
$I^2t$	$I^2t$ for fusing	$t = 8.3\text{ ms}$	-	220			A
$di_T/dt$	Repetitive rate of rise of on-state current after triggering	$t = 10\text{ ms}$ $I_M = 50\text{ A}; I_G = 0.2\text{ A};$ $di_G/dt = 0.2\text{ A}/\mu\text{s}$	-	200			A <sup>2</sup> s
$I_{GM}$	Peak gate current		-	5			A
$V_{GM}$	Peak gate voltage		-	5			V
$V_{RGM}$	Peak reverse gate voltage		-	5			V
$P_{GM}$	Peak gate power		-	20			W
$P_{G(AV)}$	Average gate power	over any 20 ms period	-	0.5			W
$T_{stg}$	Storage temperature		-40	150			°C
$T_j$	Operating junction temperature		-	125			°C

<sup>1</sup> Although not recommended, off-state voltages up to 800V may be applied without damage, but the thyristor may switch to the on-state. The rate of rise of current should not exceed 15 A/ $\mu$ s.

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**THERMAL RESISTANCES**

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{thj-mb}$	Thermal resistance junction to mounting base	minimum footprint, FR4 board	-	-	1.1	K/W
$R_{thj-a}$	Thermal resistance junction to ambient		-	55	-	K/W

**STATIC CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise stated

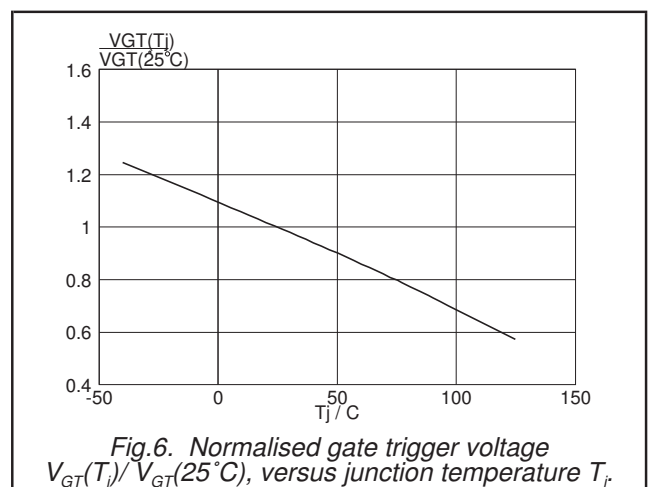
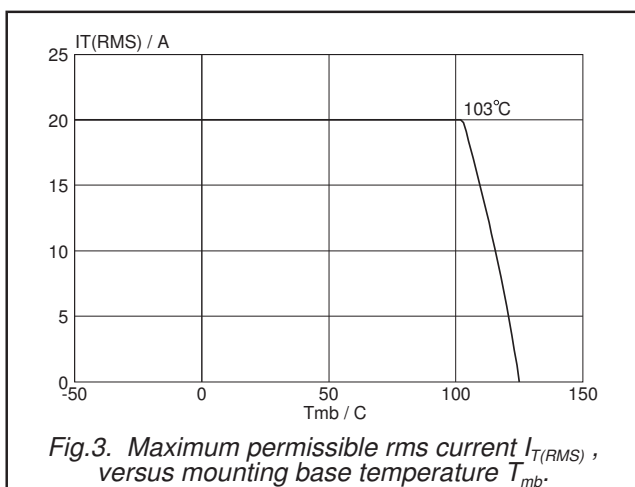
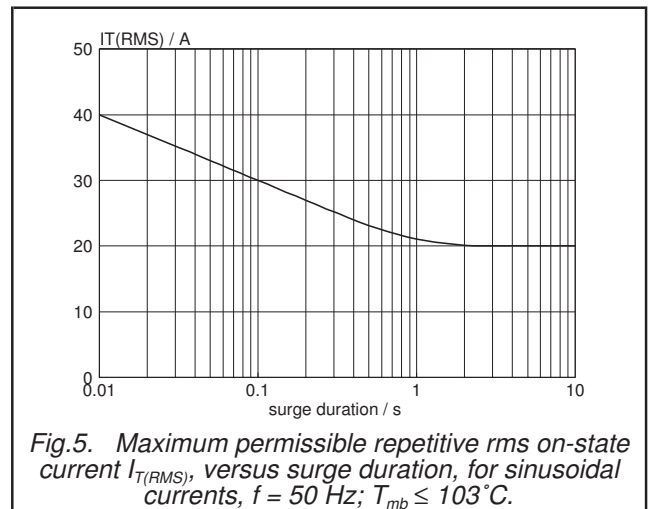
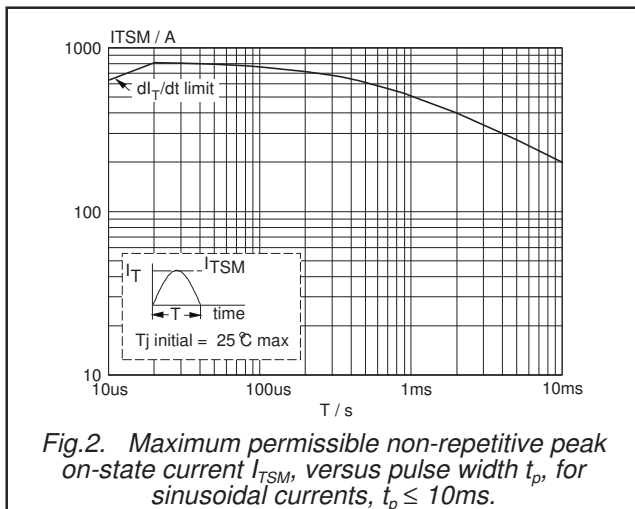
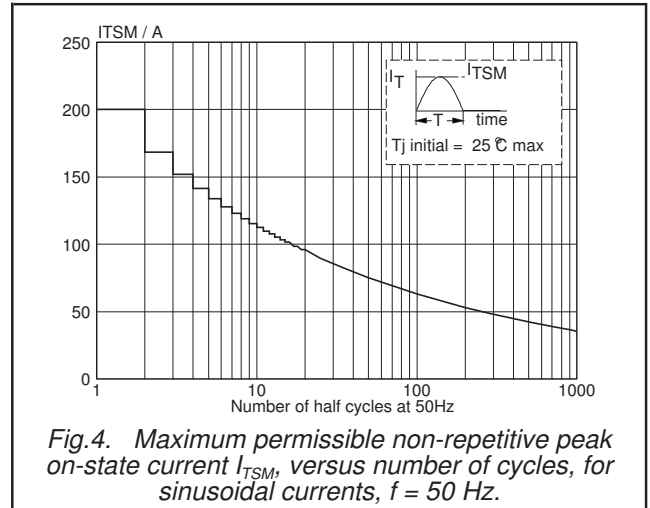
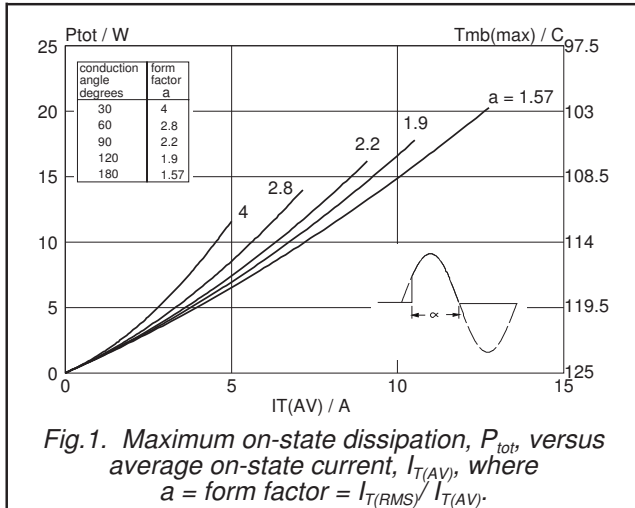
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{GT}$	Gate trigger current	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$	-	3	32	mA
$I_L$	Latching current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	25	80	mA
$I_H$	Holding current	$V_D = 12\text{ V}; I_{GT} = 0.1\text{ A}$	-	15	60	mA
$V_T$	On-state voltage	$I_T = 40\text{ A}$	-	1.4	1.75	V
$V_{GT}$	Gate trigger voltage	$V_D = 12\text{ V}; I_T = 0.1\text{ A}$	-	0.6	1.5	V
$I_D, I_R$	Off-state leakage current	$V_D = V_{DRM(max)}; I_T = 0.1\text{ A}; T_j = 125\text{ °C}$ $V_D = V_{DRM(max)}; V_R = V_{RRM(max)}; T_j = 125\text{ °C}$	0.25	0.4	-	V
			-	0.2	1.0	mA

**DYNAMIC CHARACTERISTICS** $T_j = 25\text{ °C}$  unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$dV_D/dt$	Critical rate of rise of off-state voltage	$V_{DM} = 67\% V_{DRM(max)}; T_j = 125\text{ °C};$ exponential waveform gate open circuit	200	300	-	V/ $\mu$ s
$t_{gt}$	Gate controlled turn-on time	$V_D = V_{DRM(max)}; I_G = 0.1\text{ A}; dI_G/dt = 5\text{ A}/\mu\text{s};$ $I_{TM} = 40\text{ A}$	-	2	-	$\mu$ s
$t_q$	Circuit commutated turn-off time	$V_D = 67\% V_{DRM(max)}; T_j = 125\text{ °C};$ $I_{TM} = 50\text{ A}; V_R = 25\text{ V}; dI_{TM}/dt = 30\text{ A}/\mu\text{s};$ $dV_D/dt = 50\text{ V}/\mu\text{s}; R_{GK} = 100\ \Omega$	-	70	-	$\mu$ s

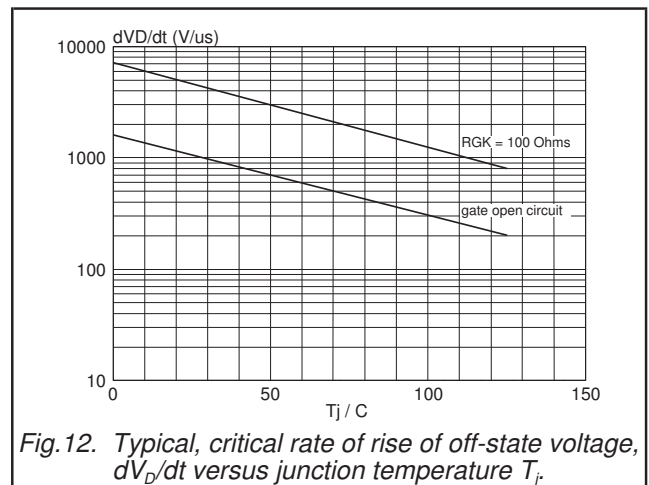
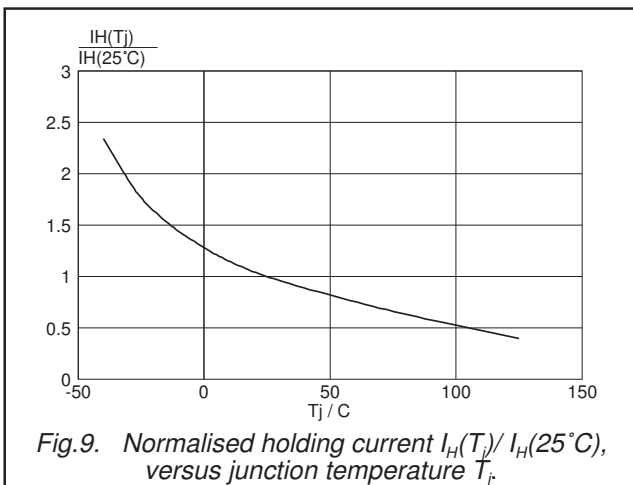
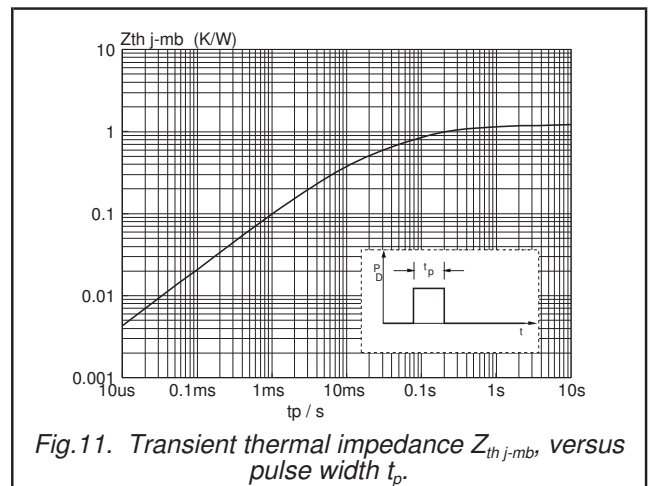
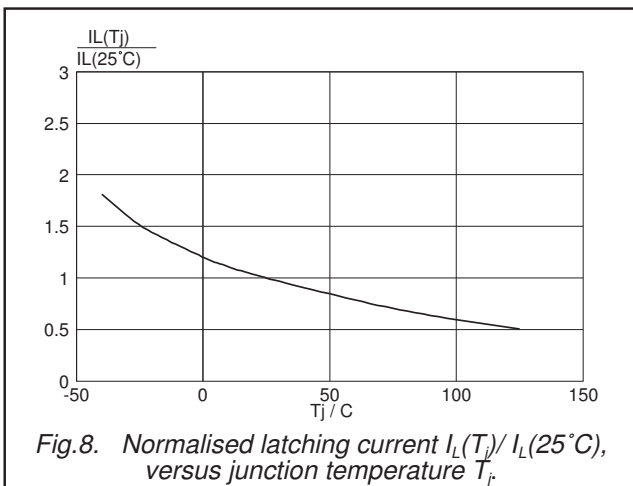
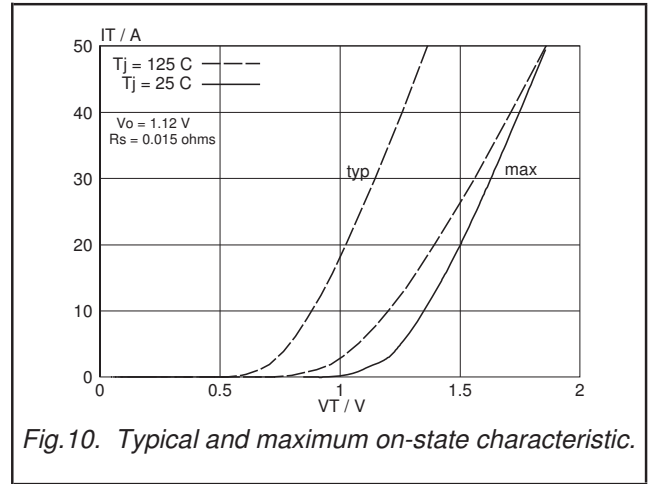
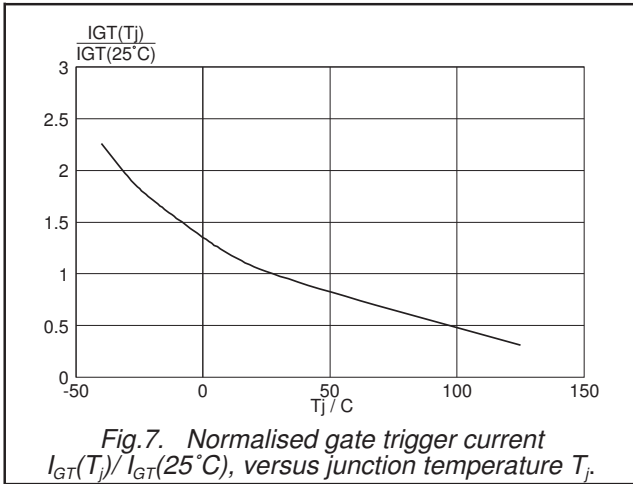
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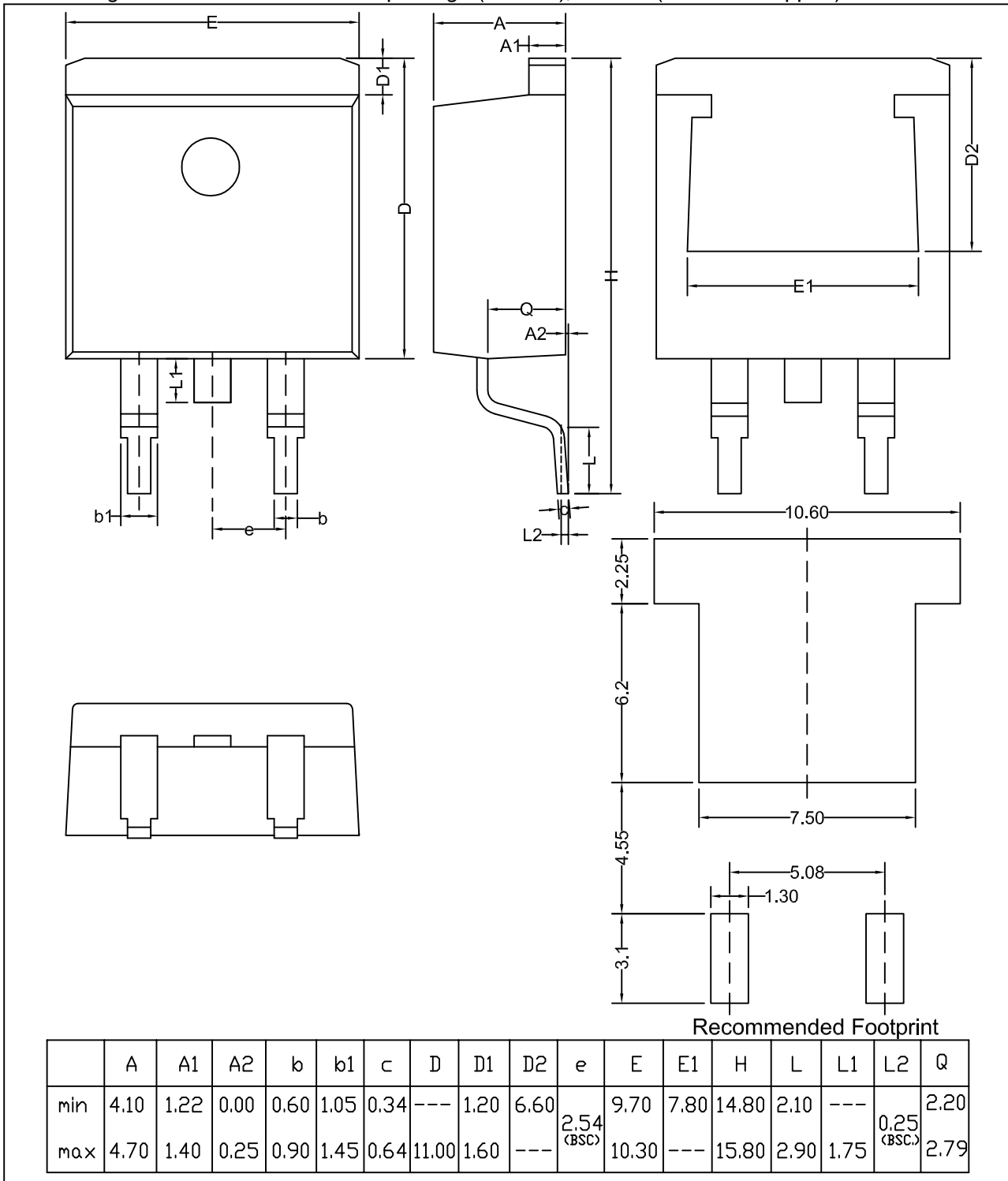
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**MECHANICAL DATA**

Assembly factory: N

Plastic single-ended surface-mounted package (D2PAK); 3 leads (one lead cropped)

TO263



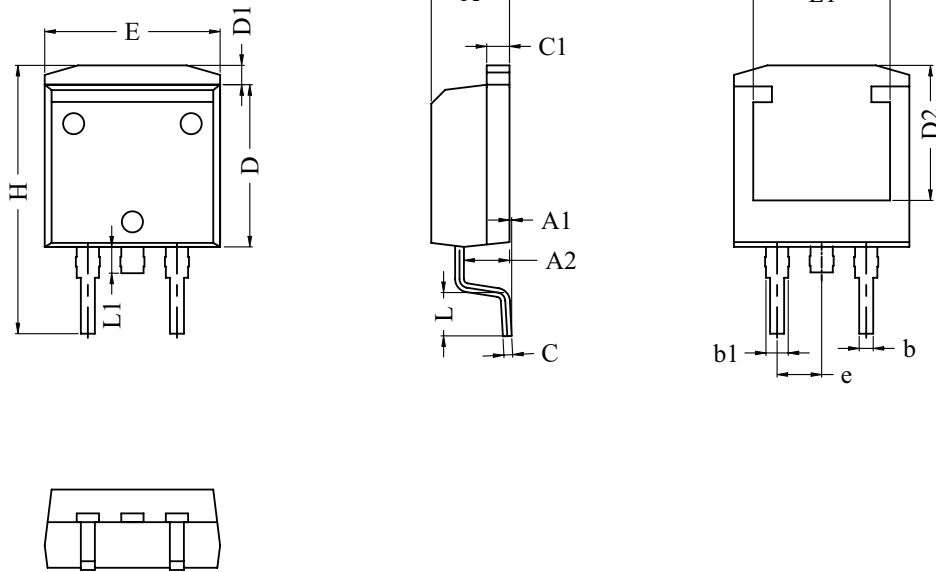
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Assembly factory: P

Plastic single-ended surface-mounted package (D2PAK); 3 leads (one lead cropped)

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Dim	All Dimensions in Millimeters		
	Min	Typ	Max
A	4.30	4.46	4.60
A1	0	0.13	0.25
A2	2.50	2.60	2.70
b	0.70	0.80	0.90
b1	1.10	1.27	1.45
C	0.40	0.52	0.60
C1	1.17	1.30	1.40
D	9.10	9.25	9.40
D1	1.00	1.10	1.30
D2	7.40	7.70	8.00
E	9.80	10.00	10.20
E1	7.60	7.80	8.00
e	2.54 BSC		
H	14.80	15.30	15.80
L	2.10	2.47	2.80
L1	1.30	1.50	1.70

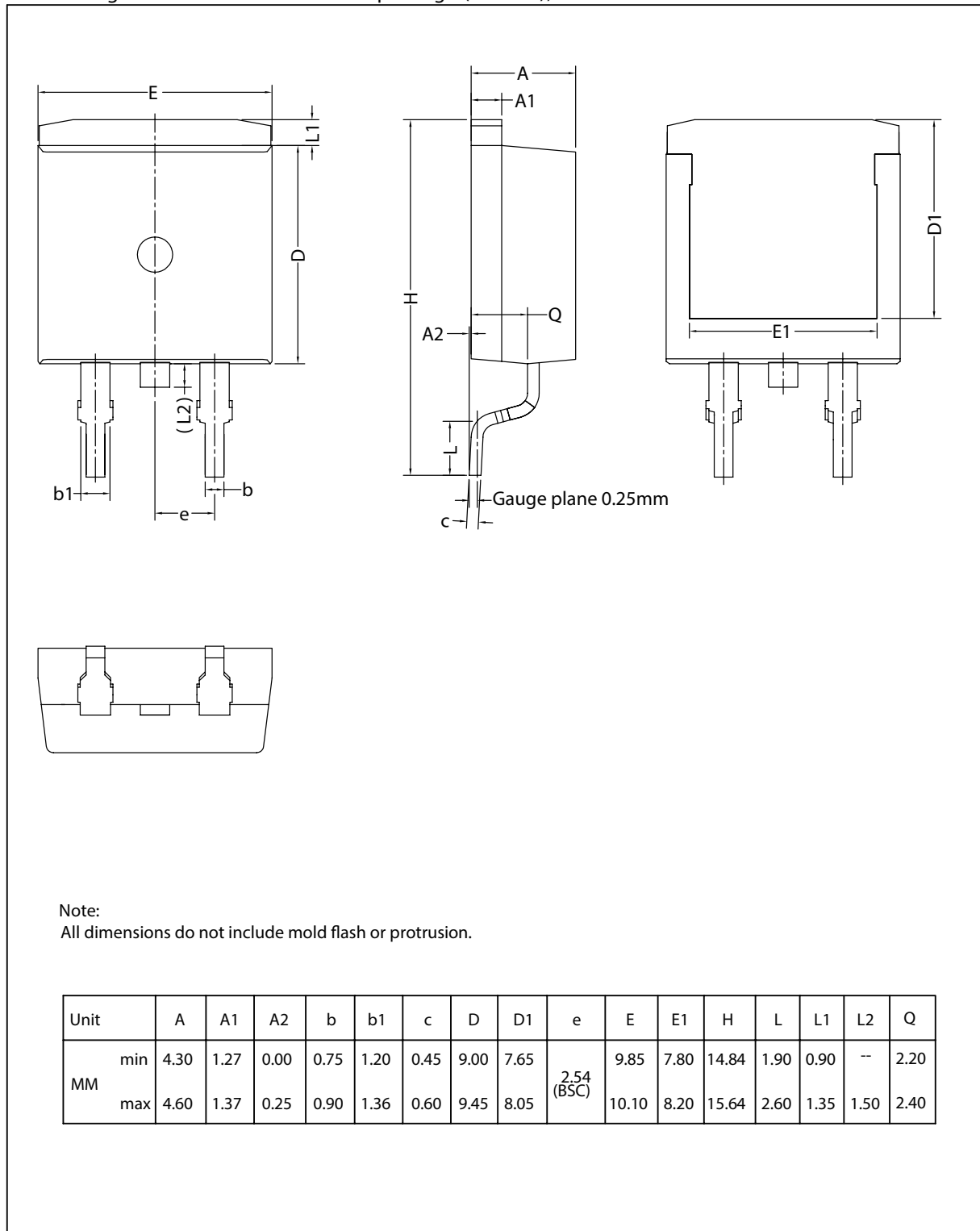
Thyristors

BT152B series

Assembly factory: d

Plastic single-ended surface-mounted package (D2PAK);

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Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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