WTMH600F16

Thyristor

Rev.01 - 19 January 2026 Product data sheet

1. General description

Pressure contact thyristor in industrial standard 60mm package for use in applications requiring high blocking voltage capability, high inrush current capability and high thermal cycling performance.

2. Features and benefits

- High blocking voltage capability
- High surge current capability
- High thermal cycling performance
- Pressure contact module with high reliability
- Easy mounting

3. Applications

- Heat and Temperature Control
- Power Converter
- Industrial Motor Drive & Soft Starter
- Lighting Control
- UPS

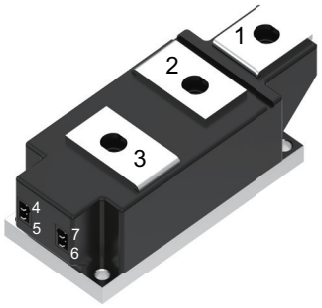
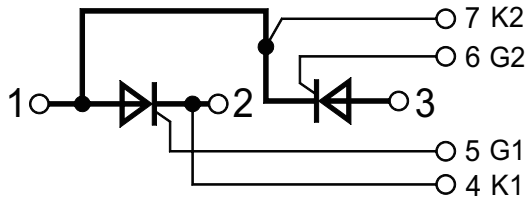
4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Notes	Values			Unit
Absolute maximum rating							
V_{DRM}	repetitive peak forward voltage			1600			V
V_{RRM}	repetitive peak reverse voltage			1600			V
$I_{T(AV)}$	average on-state current	half sine wave; T_c = 85 °C		600			A
I_{TSM}	non-repetitive peak on-state current	half sine wave; $T_{j(init)}$ = 25 °C; t_p = 10 ms		19000			A
		half sine wave; $T_{j(init)}$ = 135 °C; t_p = 10 ms		16000			A
		half sine wave; $T_{j(init)}$ = 25 °C; t_p = 8.3 ms		20900			A
		half sine wave; $T_{j(init)}$ = 135 °C; t_p = 8.3 ms		17600			A
Symbol	**Parameter**	**Conditions**		**Min**	**Typ**	**Max**	**Unit**
Static characteristics							
I_{GT}	gate trigger current	V_D = 12 V; I_T = 0.1 A; T_j = 25 °C		30	-	150	mA
V_{GT}	gate trigger voltage	V_D = 12 V; I_T = 0.1 A; T_j = 25 °C		-	-	2.5	V
V_T	on-state voltage	I_T = 1500 A; T_j = 25 °C		-	-	1.5	V

5. Pinning information

Table 2. Pinning information

Simplified outline	Graphic symbol
	

6. Ordering information

Table 3. Ordering information

Type number	Orderable part number	Packing method	Small packing quantity
WTMH600F16	WTMH600F16T	Tray	9

7. Marking

Table 4. Marking codes

Type number	Marking codes
WTMH600F16	WTMH600F16

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8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Notes	Values	Unit
V_{DRM}	repetitive peak forward voltage			1600	V
V_{RRM}	repetitive peak reverse voltage			1600	V
$I_{T(AV)}$	average on-state current	half sine wave; T_c = 85 °C		600	A
$I_{T(RMS)}$	RMS on-state current	half sine wave; T_c = 85 °C		1000	A
I_{TSM}	non-repetitive peak on-state current	half sine wave; $T_{j(init)}$ = 25 °C; t_p = 10 ms		19000	A
		half sine wave; $T_{j(init)}$ = 135 °C; t_p = 10 ms		16000	A
		half sine wave; $T_{j(init)}$ = 25 °C; t_p = 8.3 ms		20900	A
		half sine wave; $T_{j(init)}$ = 135 °C; t_p = 8.3 ms		17600	A
I^2t	I^2t for fusing	t_p = 10 ms; SIN; T_{vj} = 25 °C		1805	kA²s
		t_p = 10 ms; SIN; T_{vj} = 125 °C		1280	kA²s
dI_T/dt	rate of rise of on-state current	I_G = 300 mA; T_j = 135 °C		250	A/µs
I_{GM}	peak gate current			10	A
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_{vj}	virtual junction temperature			-40 to 135	°C
T_{op}	operation temperature			-40 to 125	°C
T_{stg}	storage temperature			-40 to 125	°C

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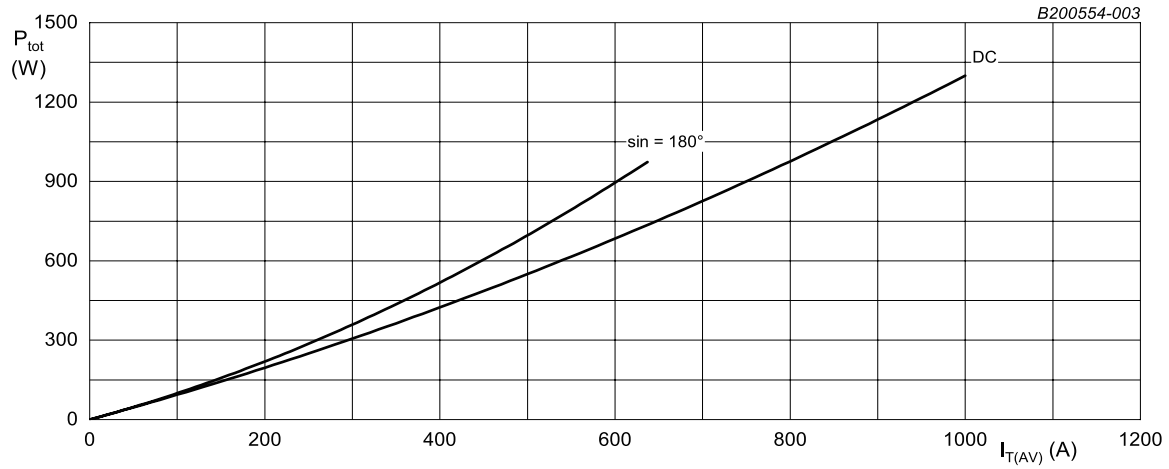
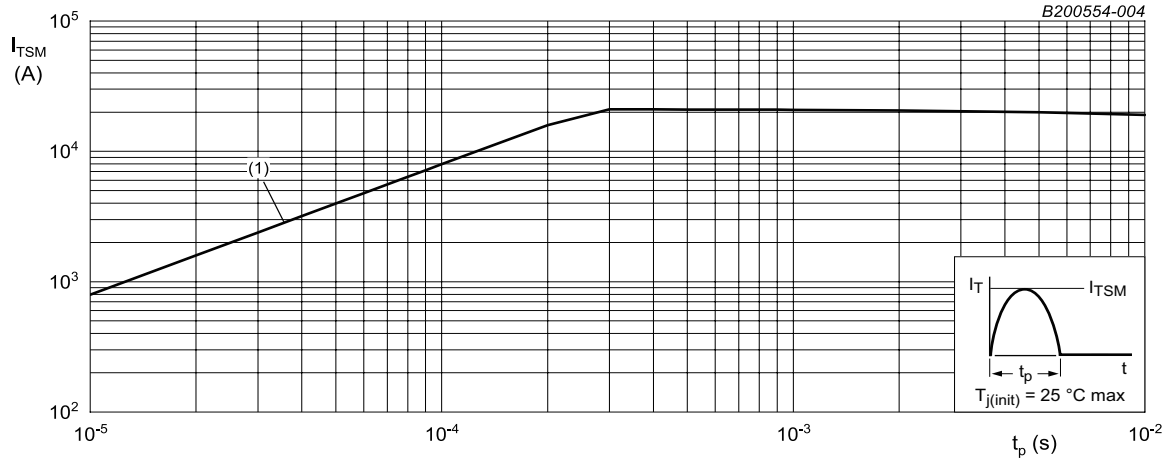


Fig. 1. Total power dissipation as a function of average on-state current; maximum values; per thyristor



$t_p \leq 10$ ms

(1) dI_T/dt limit

Fig. 2. Non-repetitive peak on-state current as a function of pulse width; maximum values

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9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-c)}$	thermal resistance from junction to case	per thyristor		-	-	0.071	K/W
$R_{th(c-h)}$	thermal resistance from case to heatsink	per thyristor		-	-	0.024	K/W

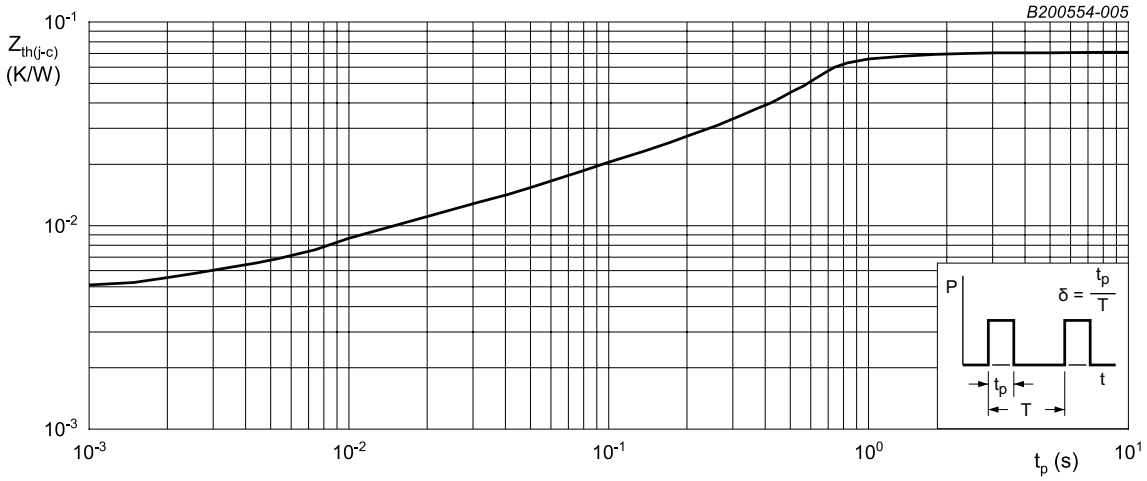

Fig. 3. Transient thermal impedance from junction to case as a function of pulse duration

10. Package characteristics

Table 7. Isolation characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_{isol}	isolation voltage	50/60 Hz; RMS; t = 1 minute; AC		-	-	2500	V

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11. Characteristics

Table 8. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Static characteristics							
I_{GT}	gate trigger current	V_D = 12 V; I_T = 0.1 A; T_j = 25 °C		30	-	150	mA
V_{GT}	gate trigger voltage	V_D = 12 V; I_T = 0.1 A; T_j = 25 °C		-	-	2.5	V
I_{GD}	gate non-trigger current	T_j = 135 °C		-	-	10	mA
V_{GD}	gate non-trigger voltage	T_j = 135 °C		-	-	0.25	V
I_L	latching current	V_D = 12 V; I_T = 0.1 A; T_j = 25 °C		-	-	500	mA
I_H	holding current	V_D = 12 V; T_j = 25 °C		-	-	150	mA
V_T	on-state voltage	I_T = 1500 A; T_j = 25 °C		-	-	1.5	V
V_{TO}	threshold voltage	T_j = 135 °C		-	-	0.9	V
r_T	slope resistance	T_j = 135 °C		-	-	0.4	mΩ
I_D	off-state current	V_D = 1600 V; T_j = 25 °C		-	-	1	mA
		V_D = 1600 V; Tj = 135 °C		-	-	100	mA
I_R	reverse current	V_R = 1600 V; T_j = 25 °C		-	-	1	mA
		V_R = 1600 V; Tj = 135 °C		-	-	100	mA
Dynamic characteristics							
dV_D/dt	rate of rise of off-state voltage	V_{DM} = 1072 V; T_j = 125 °C; (V_{DM} = 67% of V_{DRM}); exponential waveform; gate open circuit		1500	-	-	V/µs
t_{gt}	gate-controlled turn-on time	V_D = 800 V; I_G = 300 mA; $(dI_G/dt)_M$ = 1 A/µs; T_j = 25 °C		-	5	-	µs
t_q	commutated turn-off time	I_{TM} = 2 A; t_p = 50 µs; dV_D/dt = 5 V/µs; dI/dt = 30 A/µs; T_j = 25 °C		-	150	-	µs

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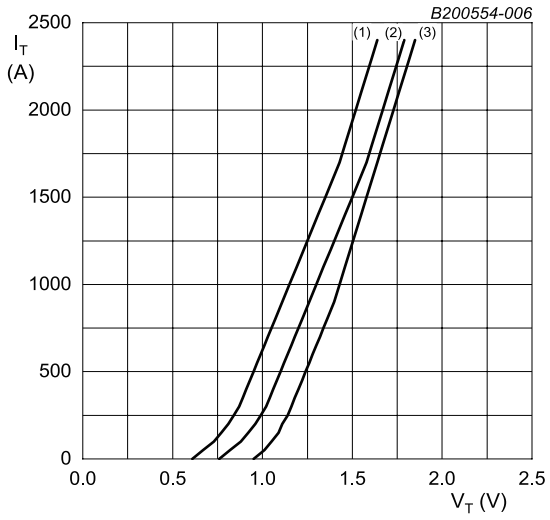

V_{TO} = 0.900 V; r_T = 0.0004 Ω
(1) T_j = 135 °C; typical values
(2) T_j = 135 °C; maximum values
(3) T_j = 25 °C; maximum values

Fig. 4. On-state current as a function of on-state voltage

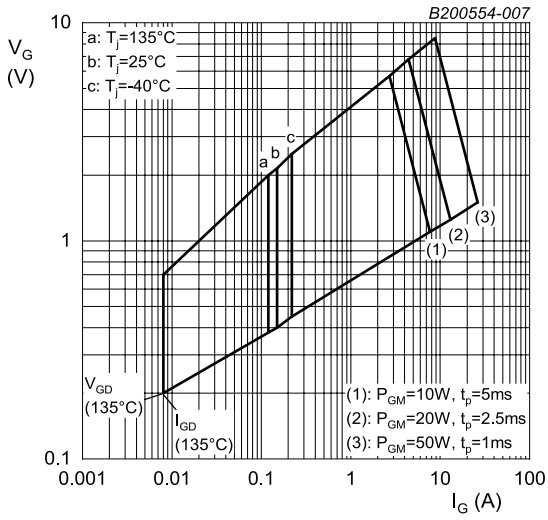

Fig. 5. Gate voltage as a function of gate current

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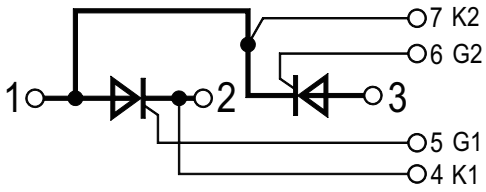
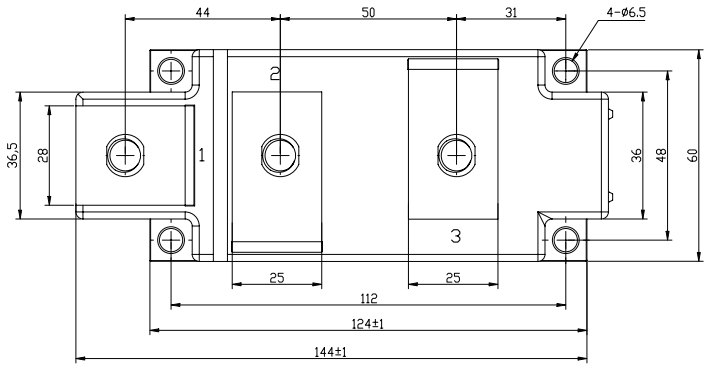
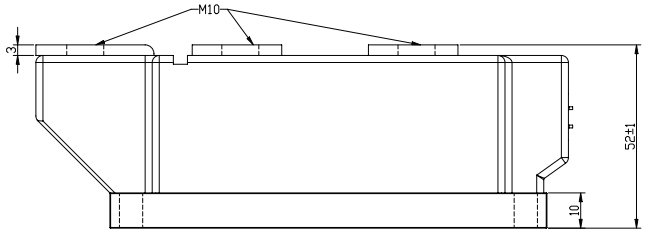
12. Package outline

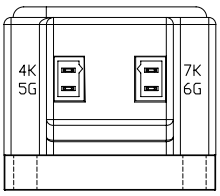
Package Outline

Dimensions in mm









General tolerance ±0.5mm

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