

THYRISTORS

BTX18 Series

Silicon thyristors in TO-39 metal envelopes, intended for use in general low power applications.

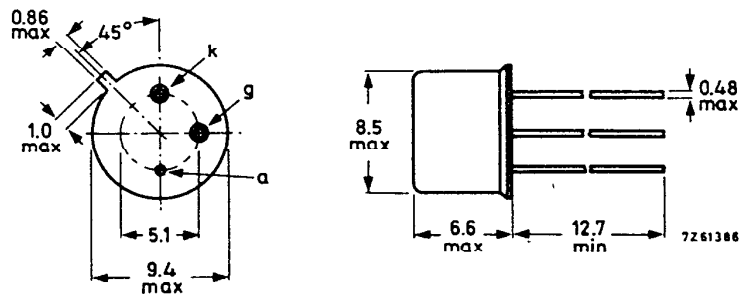
The series consists of types: BTX18-100 to 500.

QUICK REFERENCE DATA							
		BTX18-100	200	300	400	500	
Crest working voltages $V_{RWM} = V_{DWM}$	max.	100	200	300	400	500	V
Average on-state current		$I_{T(AV)}$		max.	1.0	A	
Non-repetitive peak on-state current		I_{TSM}		max.	10	A	

MECHANICAL DATA

Dimensions in mm

TO-39



Anode connected to the case

Accessories supplied on request: 56218, 56245, 56265



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

Anode to cathode

Voltages ¹⁾

	BTX18-100	200	300	400	500	
Non-repetitive peak voltages ($t \leq 10$ ms) $V_{DSM} = V_{RSM}$	max. 120	240	350	500	600	V
Repetitive peak voltages ($\delta = 0.01$; $f = 50$ Hz) $V_{DRM} = V_{RRM}$	max. 120	240	350	500	600	V
Crest working voltages $V_{DWM} = V_{RWM}$	max. 100	200	300	400	500	V
Continuous voltages $V_D = V_R$	max. 100	200	300	400	500	V

Currents

Average on-state current (averaged over any 20 ms period) up to $T_{case} = 105$ °C at $T_{amb} = 60$ °C	$I_{T(AV)}$	max.	1.0	A
	$I_{T(AV)}$	max.	250	mA
R.M.S. on-state current	$I_{T(RMS)}$	max.	1.6	A
Repetitive peak on-state current	I_{TRM}	max.	10	A
Non-repetitive peak on-state current ($t = 10$ ms, half-sinewave)	I_{TSM}	max.	10	A

Gate to cathode (with 1 k Ω resistor between gate and cathode)

Voltages

Peak forward voltage	V_{FGM}	max.	10	V
Peak reverse voltage	V_{RGM}	max.	5	V

Current

Peak forward current	I_{FGM}	max.	0.2	A
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Power dissipation

Average power dissipation (averaged over any 20 ms period)	$P_{G(AV)}$	max.	50	mW
Peak power dissipation	P_{GM}	max.	0.5	W

Temperatures

Storage temperature	T_{stg}	-55 to +125	°C
Junction temperature	T_j	125	°C

¹⁾ These ratings apply for zero or negative bias on the gate with respect to the cathode, and when a 1 k Ω resistor is connected between gate and cathode.



THERMAL RESISTANCE

From junction to case	$R_{th\ j-c}$	=	10	$^{\circ}C/W$
From junction to ambient	$R_{th\ j-a}$	=	200	$^{\circ}C/W$
Transient thermal impedance ($t = 10\ ms$)	$Z_{th\ j-c}$	=	2.5	$^{\circ}C/W \leftarrow$

CHARACTERISTICS

Anode to cathode

Voltages

	BTX18-100	200	300	400	500	
On-state voltage $I_T = 1.0\ A; T_j = 25\ ^{\circ}C$	V_T	< 1.5	1.5	1.5	1.5	1.5 V ¹⁾

Rate of rise of off-state voltage that will not trigger any device
 $R_{GK} = 1\ k\Omega; T_j = 125\ ^{\circ}C$

$\frac{dV_D}{dt}$ see page 6

Currents

Peak reverse current $V_{RM} = V_{RWM\ max}; T_j = 125\ ^{\circ}C$	I_{RM}	<	800	400	275	200	160	μA
Peak off-state current $V_{DM} = V_{DWM\ max}; T_j = 125\ ^{\circ}C$	I_{DM}	<	800	400	275	200	160	μA
Latching current; $T_j = 125\ ^{\circ}C$	I_L			typ.	10			mA
Holding current; $T_j = 25\ ^{\circ}C$	I_H			<	5.0			mA ²⁾

Gate to cathode

Voltages

Voltage that will trigger all devices; $T_j = 25\ ^{\circ}C$	V_{GT}	>	2.0	V
Voltage that will not trigger any device; $T_j = 125\ ^{\circ}C$	V_{GD}	<	200	mV

Current

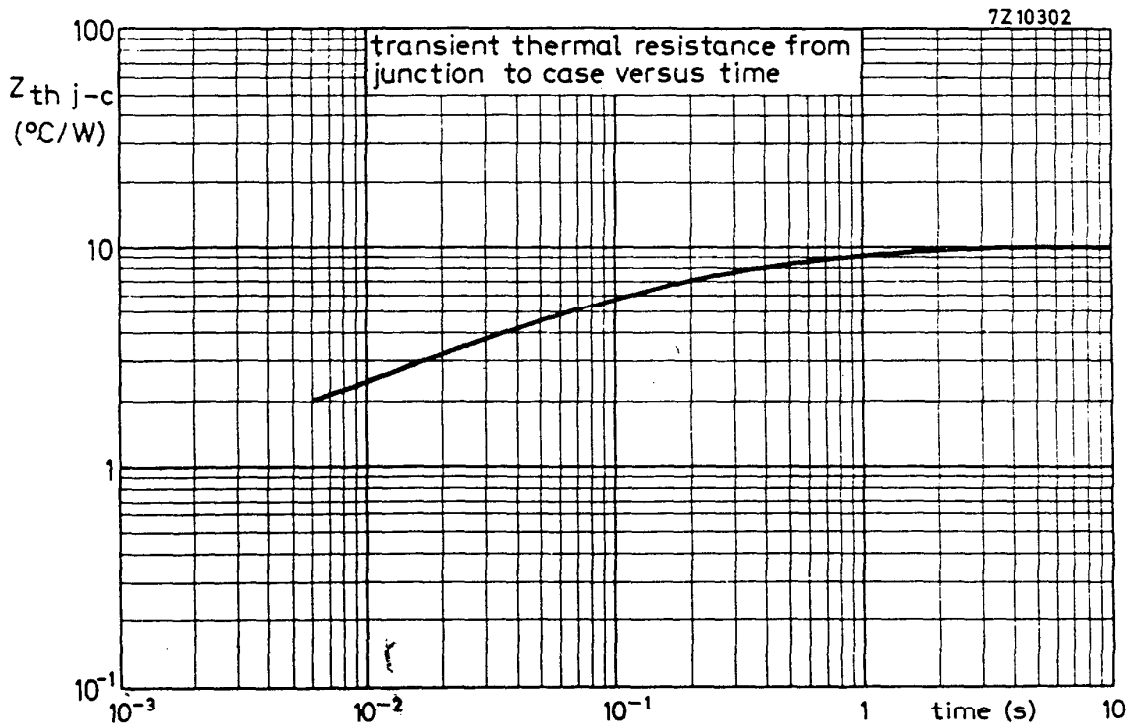
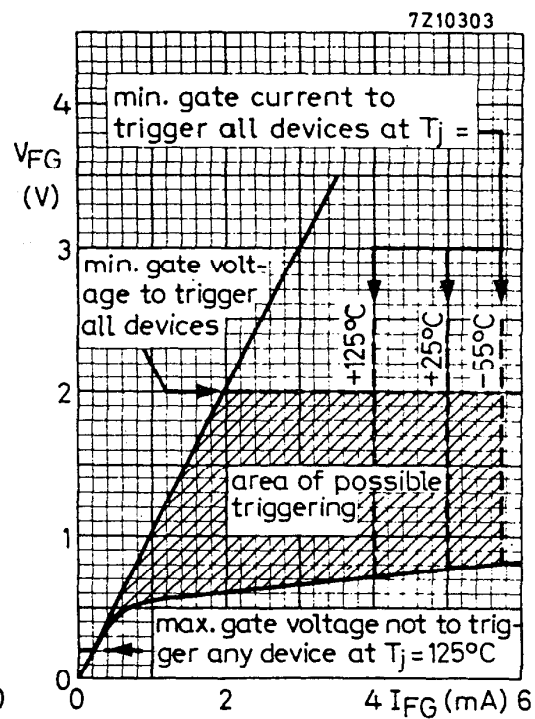
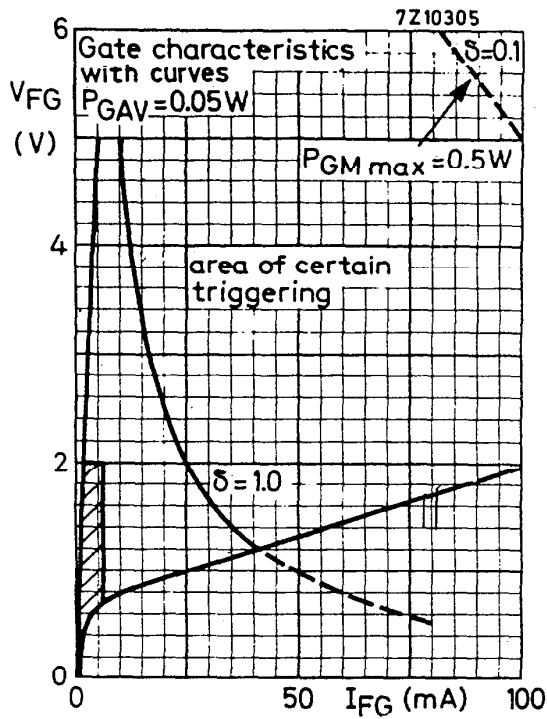
Current that will trigger all devices; $T_j = 25\ ^{\circ}C$	I_{GT}	>	5.0	mA
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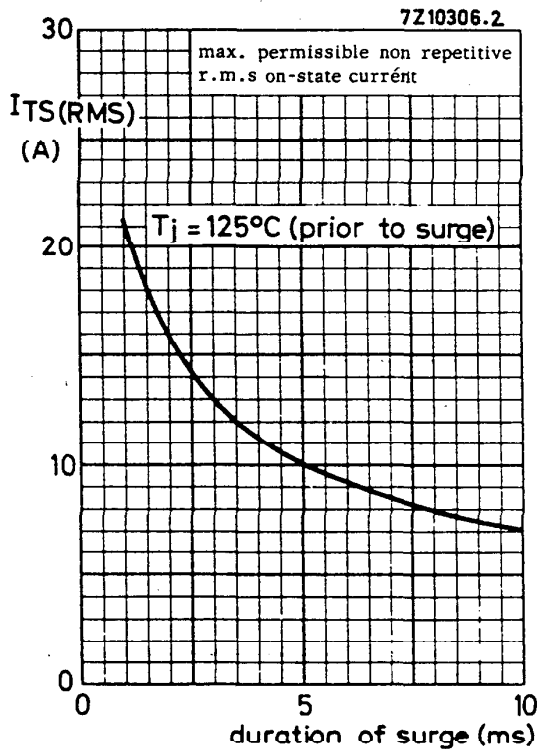
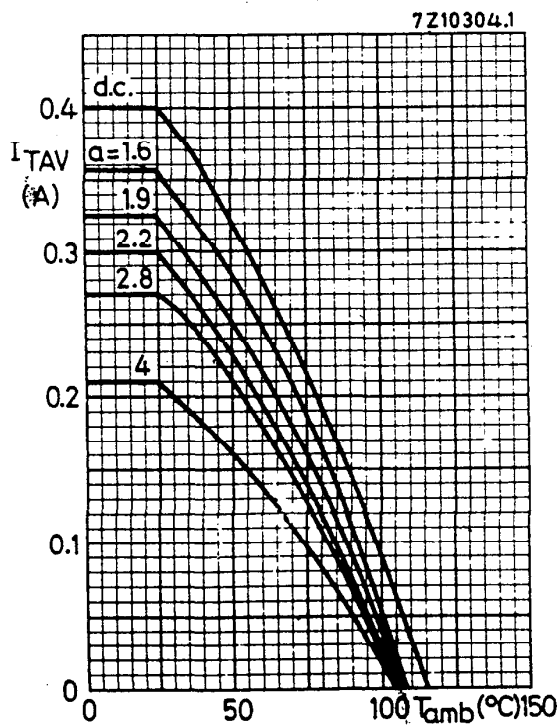
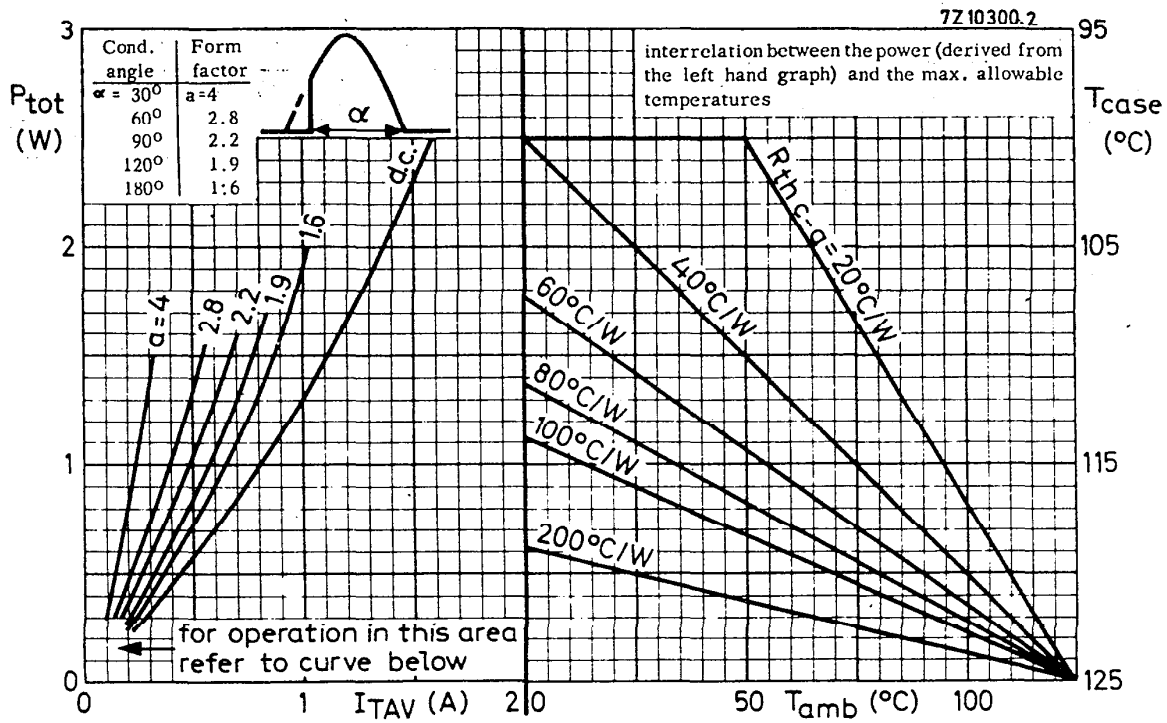
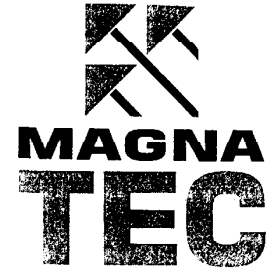
Switching characteristics

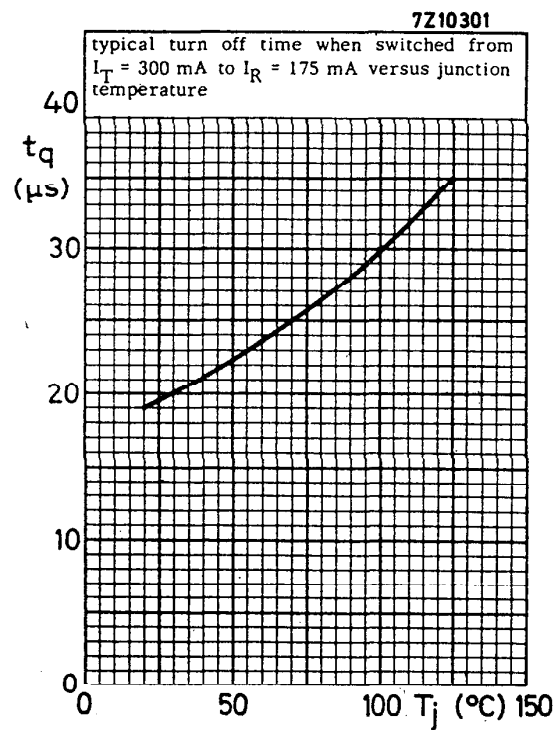
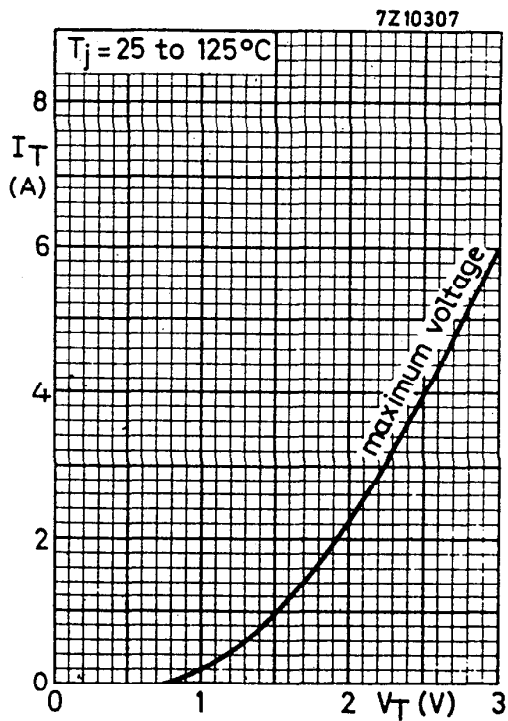
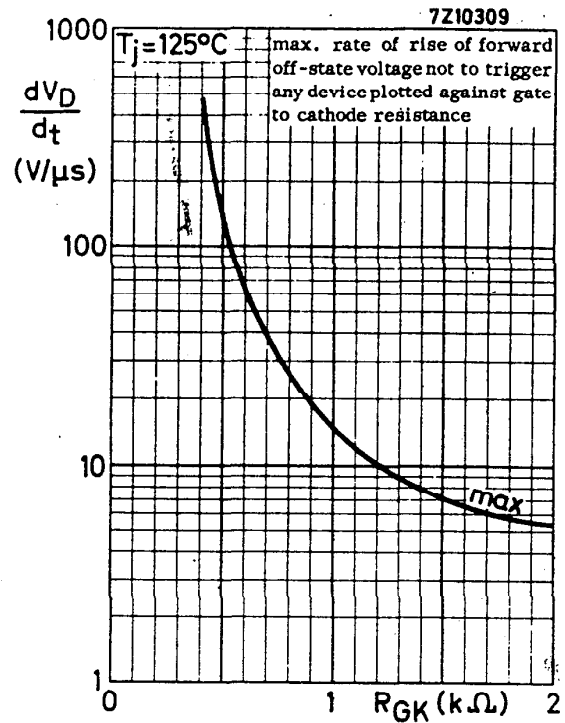
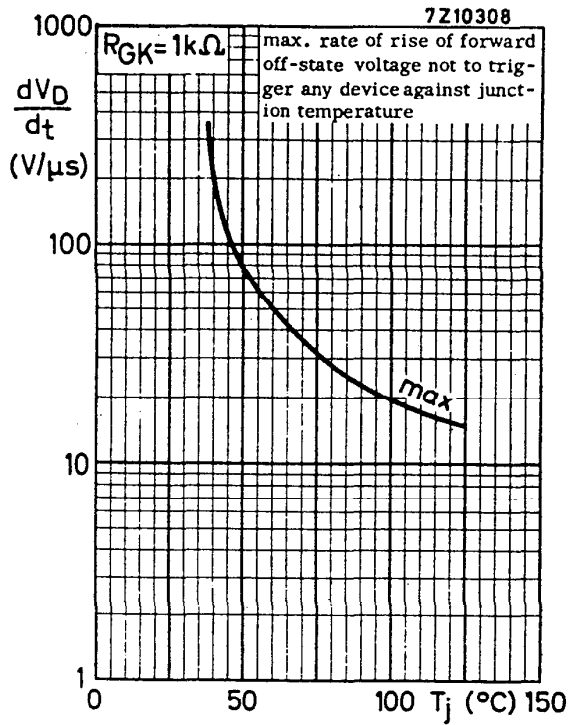
Turn-off time when switched from $I_T = 300\ mA$ to $I_R = 175\ mA; T_j = 25\ ^{\circ}C$	t_q	typ.	20	μs
$T_j = 125\ ^{\circ}C$	t_q	typ.	35	μs

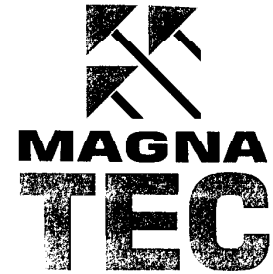
1) V_T is measured along the leads at 1 cm from the case.

2) Measured under the following conditions: anode supply voltage = +6.0 V; initial on-state current after gate triggering = 50 mA; the current is reduced until the device turns off.









NOTES

1. When using a soldering iron the thyristor may be soldered directly into the circuit, but the heat conduction to the junction should be kept to a minimum by using a thermal shunt.
2. Thyristors may be dip-soldered at a solder temperature of 245°C , for a maximum soldering time of 5 seconds. The case temperature during dip soldering must not at any time exceed the maximum storage temperature. These recommendations apply to a thyristor mounted flush on a board with punched-through holes, or spaced 1.5 mm above a board having plated-through holes.
3. Care should be taken not to bend the leads nearer than 1.5 mm from the seal.