



BTX18-100/BTX18-200/BTX18-300 BTX18-400/BTX18-500

SILICON THYRISTORS

The BTX18 series is a range of p-gate reverse blocking thyristors, in a TO-39 metal envelope, intended for use in general low power applications up to a A average on-state current.

RATINGS

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

Anode to Cathode - Ratings

Voltage ¹⁾

Symbol	Ratings	BTX18-100	BTX18-200	BTX18-300	BTX18-400	BTX18-500	
V_R	Continuous Reverse Voltage	100	200	300	400	500	V
V_{RWM}	Crest Working Reverse Voltage	100	200	300	400	500	V
V_{RRM}	Repetitive Peak Reverse Voltage ($\delta = 0.01$; $f=50\text{Hz}$)	120	240	350	500	600	V
V_{RSM}	Non-repetitive peak reverse voltage ($t<10\text{ms}$)	120	240	350	500	600	V
V_{DWM}	Crest Working off-state Voltage	100	200	300	400	500	V
V_D	Continuous off-state Voltage	100	200	300	400	500	V
V_{DRM}	Repetitive peak off-state voltage ($\delta = 0.01$; $f=50\text{Hz}$)	120	240	350	500	600	V ²⁾
V_{DSM}	Non-repetitive peak off-state voltage ($t<10\text{ms}$)	120	240	350	500	600	V ²⁾

Currents

Symbol	Ratings		BTX18-100	BTX18-200	BTX18-300	BTX18-400	BTX18-500	
I _{T(AV)}	Average on-state current (averaged over any 20 ms period)	T _{CASE} =105°C	Max : 1.0					A
		T _{AMB} =60°C, in free air	Max : 250					mA
I _T	On-state Current (D.C.) T _{CASE} =100°C		Max : 1.6					A
I _{T(RMS)}	RMS on-state Current		Max : 1.6					A

BTX18-100/BTX18-200/BTX18-300 BTX18-400/BTX18-500

Symbol	Ratings	BTX18-100	BTX18-200	BTX18-300	BTX18-400	BTX18-500	
I_{TRM}	Repetitive Peak on-state Current	Max : 10					A
I_{TSM}	Non-repetitive peak on-state current $t=10ms$; $T_J=125^{\circ}C$ prior to surge	10 A					V
T_J T_{stg}	Junction Temperature Storage Temperature	Max : $125^{\circ}C$ -55 to $+125^{\circ}C$					$^{\circ}C$

- 1) These ratings apply for zero or negative bias on the gate with respect to the cathode, and when a resistor $R < 1\text{ k}\Omega$ is connected between gate and cathode
- 2) The device is not suitable for operation in the forward breakover mode.

Gate to Cathode - Ratings

With 1Ω resistor between gate and cathode

Symbol	Ratings	BTX18-100	BTX18-200	BTX18-300	BTX18-400	BTX18-500	
V_{FGM}	Forward Peak Voltage	Max : 10 V					V
V_{RGM}	Reverse Peak Voltage	Max : 5 V					V
I_{FGM}	Forward Peak Current	Max : 0.2					A
$P_{G(AV)}$	Average Power Dissipation (averaged over any 20 ms period)	Max : 0.05					W
P_{GM}	Peak Power Dissipation	Max : 0.5					W

Temperatures

Symbol	Ratings	BTX18-100	BTX18-200	BTX18-300	BTX18-400	BTX18-500	
$R_{th\ j-c}$	From Junction to Case	10					$^{\circ}C/W$
$R_{th\ j-a}$	From Junction to Ambient	200					$^{\circ}C/W$
$Z_{th\ j-c}$	Transient Thermal Resistance ($t=10\text{ ms}$)	2.5					$^{\circ}C/W$

Anode to Cathode - Characteristics

Symbol	Ratings	BTX18-100	BTX18-200	BTX18-300	BTX18-400	BTX18-500	
V_T	On State Voltage $I_T=1.0\text{ A}$, $T_J=25^{\circ}C$	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	$V^{1)}$

BTX18-100/BTX18-200/BTX18-300 BTX18-400/BTX18-500

Symbol	Ratings		BTX18 -100	BTX18 -200	BTX18 -300	BTX18 -400	BTX18 -500	
I_{RM}	Peak Reverse Current $V_{RM}=V_{RWmax}$; $T_j=125^{\circ}C$	<	800	400	275	200	160	μA
I_{DM}	Peak off-state Current $V_{DM}=V_{DWmax}$; $T_j=125^{\circ}C$	<	800	400	275	200	160	μA
I_L	Latching current, $T_j=125^{\circ}C$		Typ : 10					mA
I_H	Holding Current ; $T_j=25^{\circ}C$	<	5.0 ²⁾					mA

Gate to Cathode – Characteristics

Symbol	Ratings		BTX18 -100	BTX18 -200	BTX18 -300	BTX18 -400	BTX18 -500	
V_{GT}	Voltage that will trigger all devices $T_j=25^{\circ}C$	>	2.0					V
V_{GD}	Voltage that will not trigger any device $T_j=125^{\circ}C$	<	200					mV
I_{GT}	Current that will trigger all devices $T_j=25^{\circ}C$	>	5.0					mA

Switching Characteristics

Symbol	Ratings			BTX18 -100	BTX18 -200	BTX18 -300	BTX18 -400	BTX18 -500	
Turn off time when switched from IT=300 mA to IR=175 mA	Tj=25°C	tq	Type : 20					µs	
	Tj=125°C		Typ : 35						
IDM	Peak off-state Current VDM=VDWmax ; Ti=125°C	<	800	400	275	200	160	µs	

- 1) V_T is measured along the leads at 1 cm from the case
- 2) Measured under the following conditions :
Anode supply voltage= +6.0V
Initial on-state current after gate triggering= 50mA
The current is reduced until the device turns off.

BTX18-100/BTX18-200/BTX18-300 **BTX18-400/BTX18-500**

MECHANICAL DATA CASE TO-39

DIMENSIONS		
	mm	inches
A	6,71	0,26
B	13,2	0,51
C	9,23	0,36
D	8,34	0,32
E	0,8	0,03
F	0,8	0,03
G	0,42	0,016
H	45°	
L	4,97	0,2

Pin 1 :	Kathode
Pin 2 :	Gate
Pin 3 :	Anode

