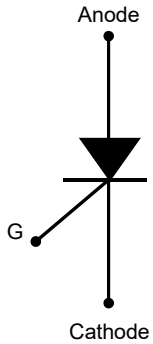
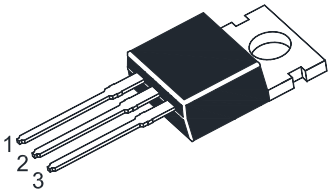
BT12-500-HAF

Planar Unidirection Thyristors

Features

• Halogen and Antimony Free(HAF), RoHS compliant





1.Cathode 2. Anode 3. Gate
TO-220FB Plastic Package

Absolute Maximum Ratings (T_a = 25 °C unless otherwise noted)

Parameter		Symbol	Value	Unit
Repetitive Peak off-State Voltage		V_{DRM}	500	V
Repetitive Peak Reverse Voltage		V_{RRM}	500	V
RMS on-State Current All conduction angles		$I_{T(RMS)}$	12	A
Peak Non-repetitive Surge Current (Half sine wave, T_j = 25 °C prior to surge)	t = 10 ms	I_{TSM}	120	A
Circuit Fusing Considerations	t = 10 ms	I^2t	50	A^2s
Critical Rate-of-Rise of on-Sate Current at I_{TM} = 20 A, I_G = 50 mA, d_{IG}/d_t = 50 mA/ms		dI/dt	50	A/μs
Peak Gate Current		I_{GM}	2	A
Peak Gate Voltage		V_{GM}	5	V
Peak Reverse Gate Voltage		V_{RGM}	5	V
Peak Gate Power Dissipation (Over any 20 ms period)		P_{GM}	5	W
Average Gate Power Dissipation		$P_{G(AV)}$	0.5	W
Operating Junction Temperature Range		T_J	125	℃
Storage Temperature Range		T_{Stg}	- 40 to + 150	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	60	℃/W

Dated: 24/09/2021 Rev:01

Characteristics at T_j = 25℃ unless otherwise specified

Parameter	Symbol	Min.	Max.	Unit
Peak Forward or Reverse Blocking Current at V_{DRM} / V_{RRM}, T_j = 125°C	I_{DRM}, I_{RRM}	-	0.5	mA
Peak Forward on-State Voltage at I_T = 23 A	V_T	-	1.75	V
Gate Trigger Current at V_D = 12 V, I_T = 100 mA	I_{GT}	-	15	mA
Holding Current at V_D = 12 V, I_{GT} = 100 mA	I_H	-	20	mA
Latching Current at V_D = 12 V, I_{GT} = 100 mA	I_L	-	40	mA
Gate Trigger Voltage at V_D = 12 V, I_T = 100 mA at V_D = 500 V, I_T = 100 mA, T_j = 125°C	V_{GT}	- 0.25	1.5 -	V
Critical rate of rise of voltage at V_D = 67% V_{DRM} Gate Open, T_j = 125°C	dV/dt	50	-	V/µs

Electrical Characteristics Curves

Fig.1 RMS on-State Current vs.T_a

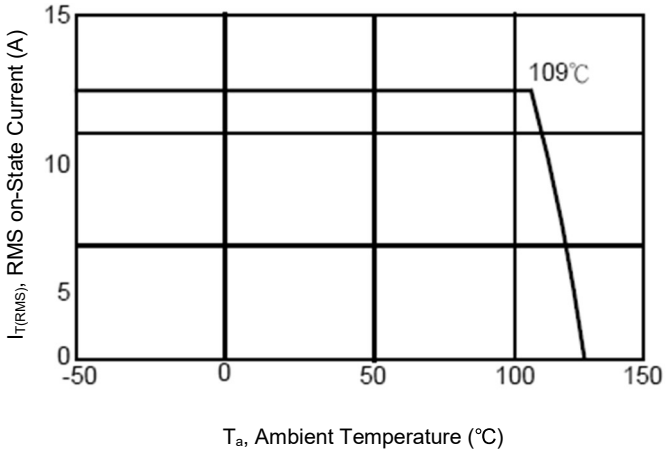


Fig.2 Surge Peak on-State Current vs. time

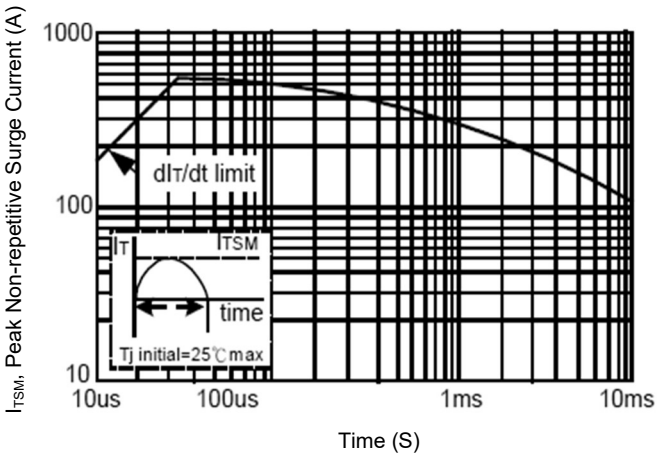


Fig.3 RMS on-State Current vs. Surge duration

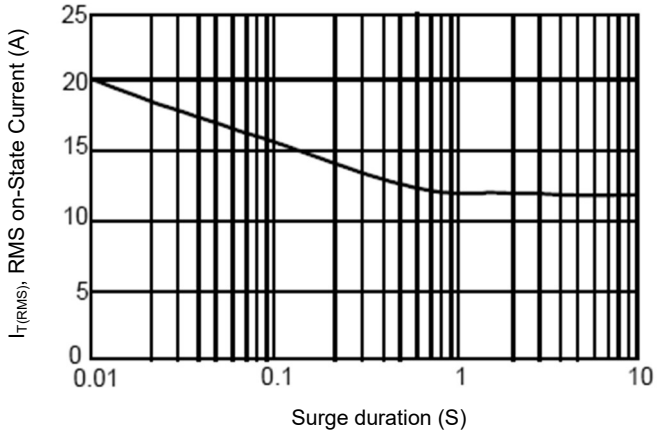
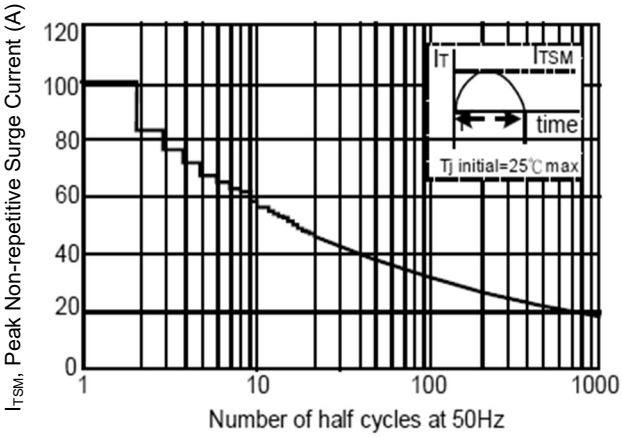
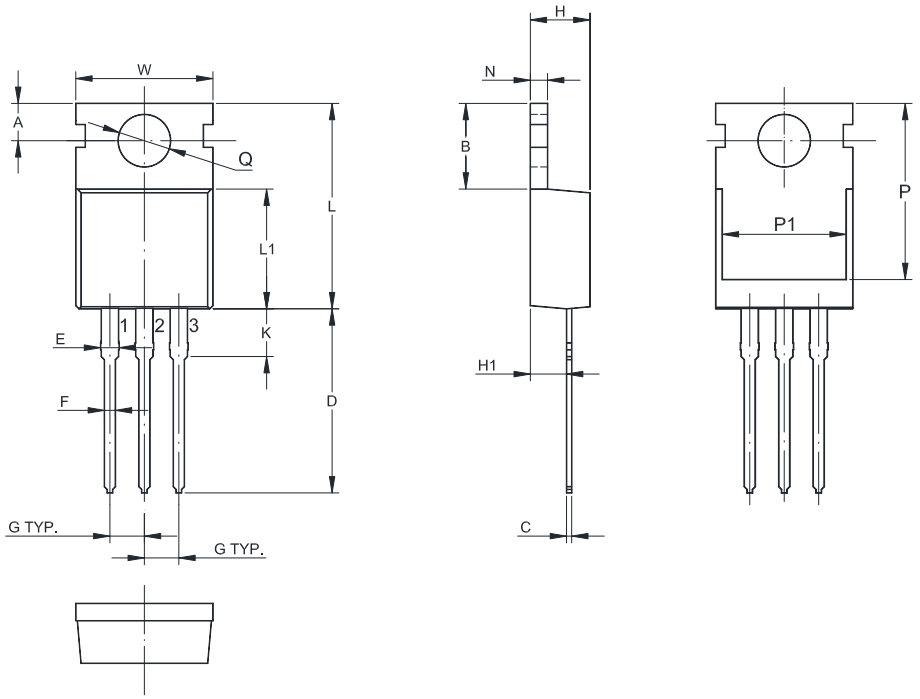


Fig.4 Surge Peak on-State Current vs. number of Cycles



Package Outline Dimensions (Units: mm) TO-220FB



UNIT	A	B	C	D	E	F	G	W	H	H1	K	L	L1	N
mm	2.9	6.8	0.7	15	1.5	0.9	2.54 TYP.	10.2	4.7	2.5	3.1	16.8	9.4	1.4
	2.7	6.4	0.3	11	1.1	0.7		9.8	4.3	2.2	2.7	14.8	9.0	1.2

UNIT	P	P1	Q
mm	13.3	8.2	3.7
	12.7	7.6	3.5

Marking information

" BT12-500 " = Part No.
" ****** " = Date Code Marking
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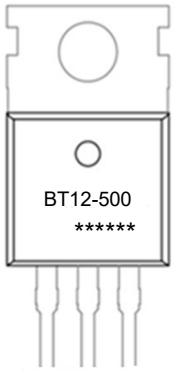

Dated: 24/09/2021 Rev:01