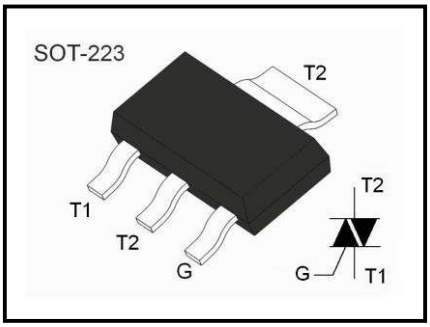
迈诺斯科技

BT134W

SOT-223 Plastic-Encapsulate Triacs

General Description

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



Absolute Maximum Rating (Ta=25°C)

Limiting values in accordance with the Absolute Maximum System

Parameter	Symbol	Conditions		Min	Max			Unit
Repetitive peak off-state voltages	V_{RRM} V_{DRM}			-	-500 500	-600 600	-800 800	V
On-State RMS Current	$I_{T(RMS)}$	full sine wave; T_{mb}≤108 °C		-	2			A
Non-repetitive peak on-state current	I_{TSM}	full sine wave; T_j = 25 °C prior to surge	t = 20 ms	-	15			A
			t = 16.7 ms	-	18			
I^2t for fusing	I^2t	t = 10 ms		-	0.5			A^2s
Repetitive rate of rise of on-state current after triggering	$d_{IT/dt}$	I_{TM}= 3A; I_G = 0.2A; $d_{IG/dt}$ = 0.2A/μs	T2+ G+	-	50			A/μs
			T2+ G-	-	50			
			T2- G-	-	50			
			T2- G+	-	10			
Peak gate current	I_{GM}			-	2			A
Peak Gate Voltage	V_{GM}			-	5			V
Peak gate power	P_{GM}			-	5			W
Average gate power	$P_{G(AV)}$	over any 20 ms period		-	0.5			W
Storage Temperature	T_{stg}			-40	150			°C
Operating junction temperature	T_J			-	125			°C

Thermal Resistances

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Thermal resistance junction to solder point	$R_{th\ j\text{-}sp}$	full or half cycle	-		15	K/W
Thermal resistance junction to ambient	$R_{th\ j\text{-}a}$	pcb mounted; minimum footprint pcb mounted;	-	156 70		K/W

Static Characteristics T_j = 25°C unless otherwise stated

Parameter	Symbol	Conditions		Min	Typ	Max			Unit
						...	...F	...G	
Gate trigger current	I_{GT}	V_D = 12V I_T = 0.1A	T2+ G+	-		35	25	50	mA
			T2+ G-	-		35	25	50	
			T2- G-	-		35	25	50	
			T2- G+	-		70	70	100	
Latching current	IL	V_D = 12V I_{GT} = 0.1A	T2+ G+	-		20	20	30	mA
			T2+ G-	-		30	30	45	
			T2- G-	-		20	20	30	
			T2- G+	-		30	30	45	
Holding current	I_H	V_D = 12V, I_{GT} = 0.1A				15	15	30	mA
On-state voltage	V_T	I_T = 3A			1.2	1.5			V
Gate trigger voltage	V_{GT}	V_D = 12V; I_T = 0.1A				1.5			V
		V_D = 400V; I_T = 0.1A; T_j = 125°C		0.25					
Off-state leakage current	I_D	V_D = VDRM(max); Tj = 125 °C				0.5			mA

Dynamic Characteristics T_j = 25 ˚C unless otherwise stated

Parameter	Symbol	Conditions	Min			Typ	Max	Unit
			...	...F	...G			
Critical rate of rise of Critical rate of rise of	$d_{VD/dt}$	V_{DM} =67% V_{DRM}(max); V_{DM} =67% V_{DRM}(max); V_{DM} =67% V_{DRM}(max); circuit	100	50	200	250	-	V/µs
Critical rate of change of commutating voltage	dVcom/dt	V_{DM} = 400 V; T_j = 95˚C; $I_{T(RMS)}$ = 1 A; d_{Icom}/d_t = 1.5 A/ms; gate open circuit	-	-	10	50	-	V/µs
Gate controlled turn-on time	tgt	I_{TM} = 1.5 A; V_D = V_{DRM}(max); I_G = 0.1A; d_{IG}/d_t = 5A/µs;						µs

Typical Characteristics

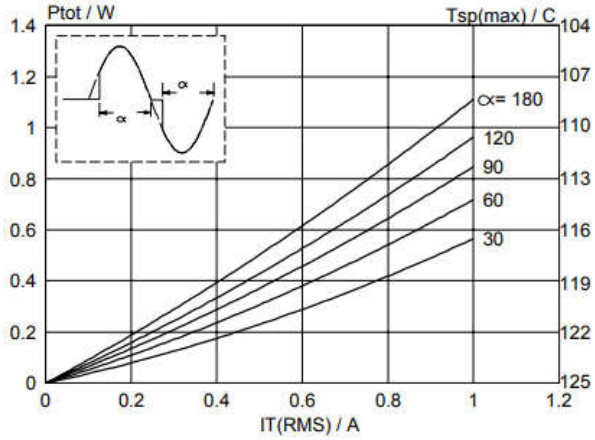


Fig.1. Maximum on-state dissipation, Ptot, versus rms on-state current, $I_{T(RMS)}$, where α = conduction angle.

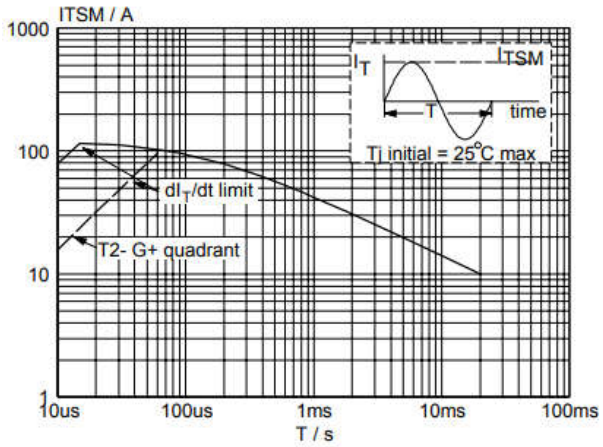


Fig.2. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus pulse width tp, for sinusoidal currents, tp ≤ 20ms.

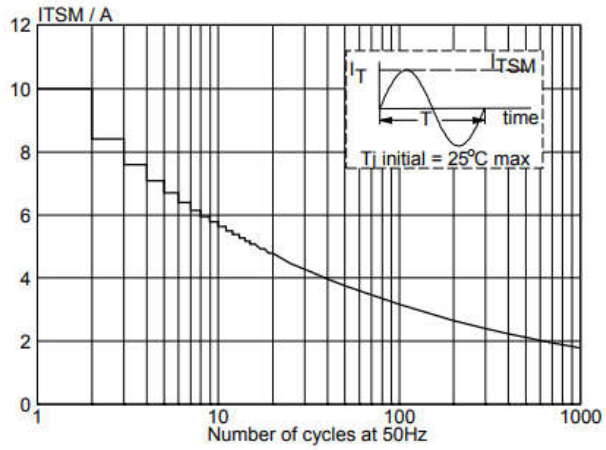


Fig.3. Maximum permissible non-repetitive peak on-state current I_{TSM}, versus number of cycles, for sinusoidal currents, f = 50 Hz.

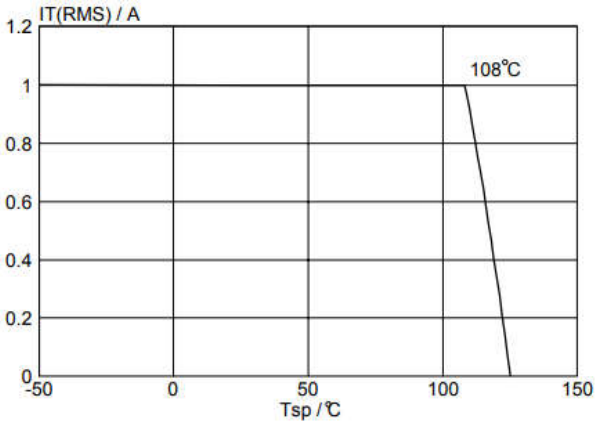


Fig.4. Maximum permissible rms current $I_{T(RMS)}$, versus solder point temperature Tsp.

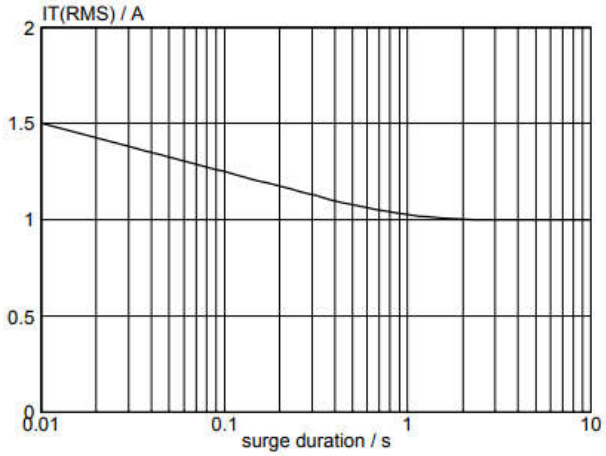


Fig.5. Maximum ermissible repetitive rms n-state current $I_{T(RMS)}$, versus surge duration, for sinusoidal currents, f = 50Hz; T_{sp} ≤ 108˚C.

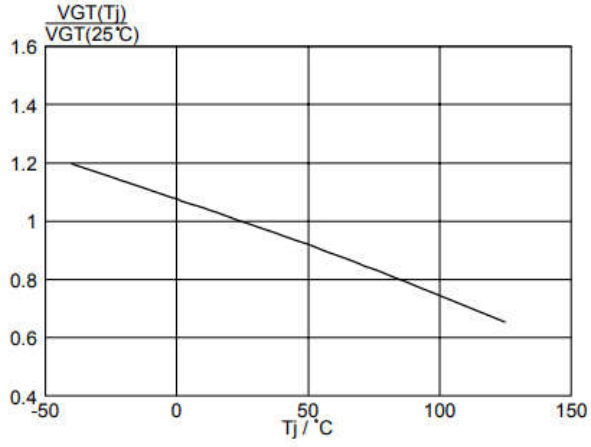


Fig.6.Normalised gate trigger voltage $V_{GT}(T_j)/V_{GT}$ (25˚C), versus junction temperature T_j.

Typical Characteristics

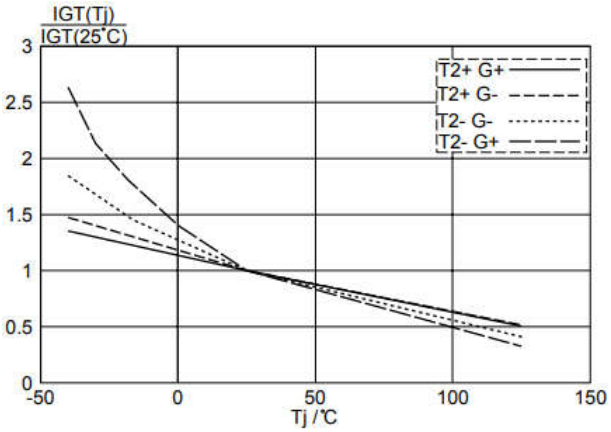


Fig.7. Normalised gate trigger current $I_{GT}(T_j)$/ $I_{GT}(25^{\circ}C)$, versus junction temperature T_j.

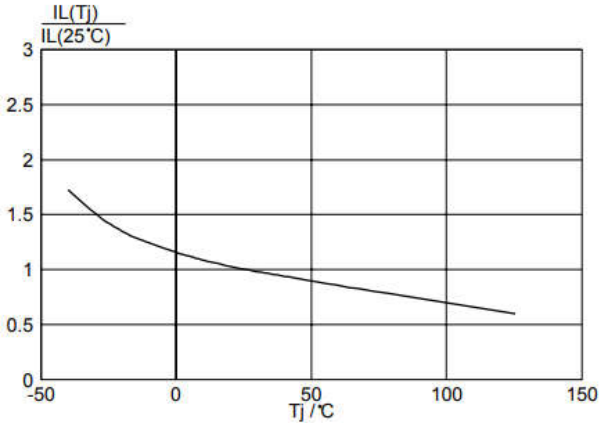


Fig.8. Normalised latching current $I_L(T_j)$/ $I_L(25^{\circ}C)$, versus junction temperature T_j.

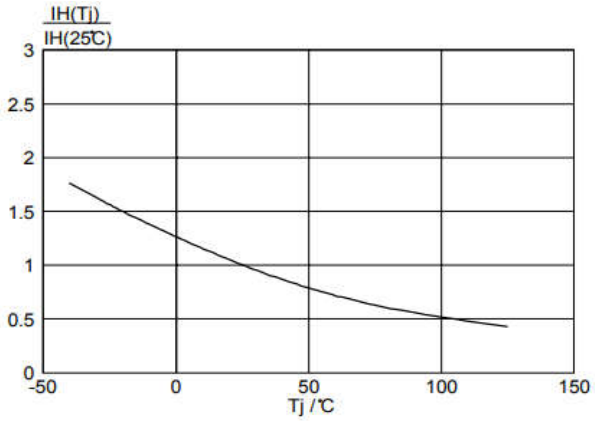


Fig.9. Normalised holding current $I_H(T_j)$/ $I_H(25^{\circ}C)$, versus junction temperature T_j.

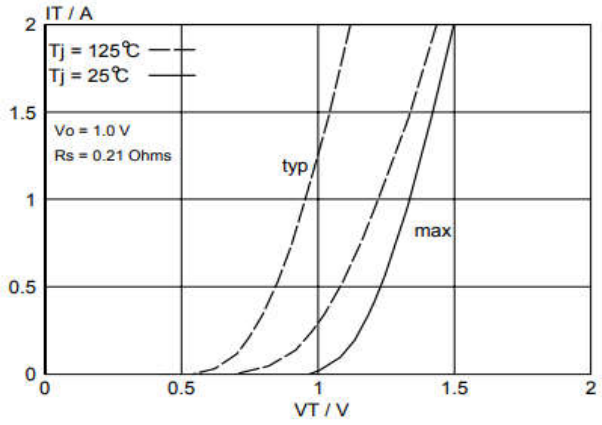


Fig.10. Typical and maximum on-state characteristic.

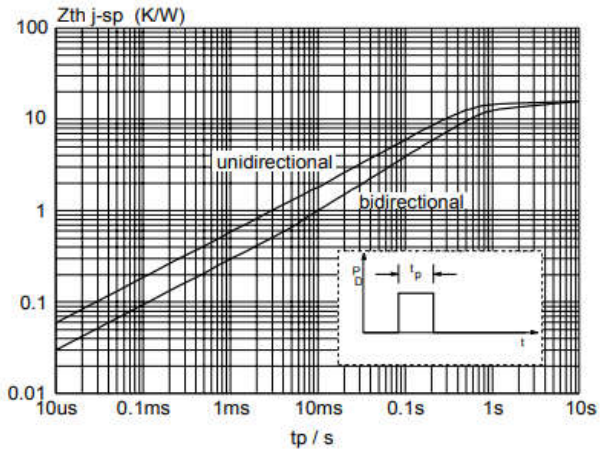


Fig.11. Transient thermal impedance $Z_{th\ j\text{-}sp}$, versus pulse width tp.

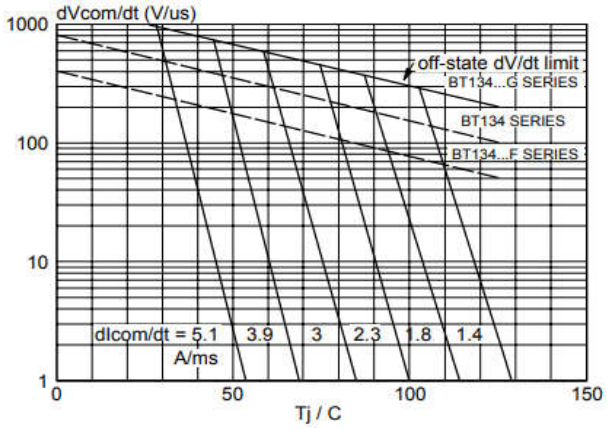
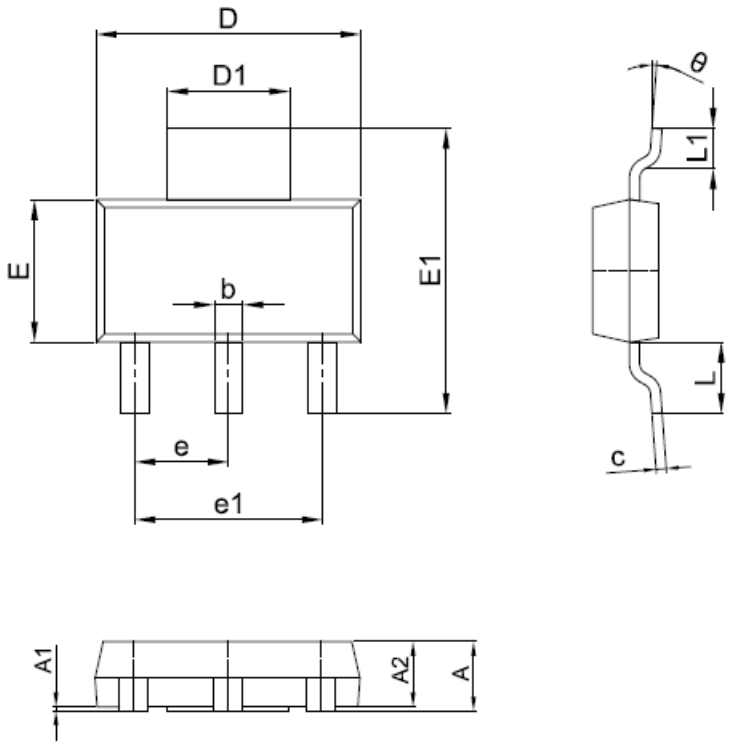


Fig.12. Typical commutation dV/dt versus junction temperature, parameter commutation dI_T/dt. The triac should commutate when the dV/dt is below the value on the appropriate curve for pre-commutation dI_T/dt.

Package Dimensions (Unit:mm)



Symbol	SOT-223		
	Min.	Typ	Max.
A	1.50	1.65	1.80
A1	0.00	0.05	0.10
A2	1.50	1.60	1.70
b	0.65	0.70	0.75
c	0.20	0.25	0.30
D	6.40	6.50	6.60
D1	2.90	3.00	3.10
E	3.30	3.50	3.70
E1	6.85	7.00	7.15
e	2.20	2.30	2.40
e1	4.40	4.60	4.80
L	1.65	1.75	1.85
L1	0.90	1.00	1.15
θ	0°	5°	10°

NOTE:

1. Exceeding the maximum ratings of the device in performance may cause damage to the device, even the permanent failure, which may affect the dependability of the machine. Please do not exceed the absolute maximum ratings of the device when circuit designing.
2. When installing the heat sink, please pay attention to the torsional moment and the smoothness of the heat sink.
3. MOSFETs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.
4. Shenzhen Minos reserves the right to make changes in this specification sheet and is subject to change withoutprior notice.

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