



Z04 Series

4A TRICs

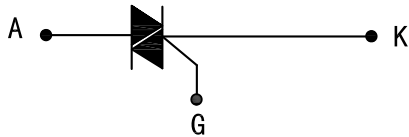
DESCRIPTION:

The Z04 series is suitable for general purpose AC switching applications. They can be found in applications such as touch light dimmers, fan controllers, HID lamp ignitors,...

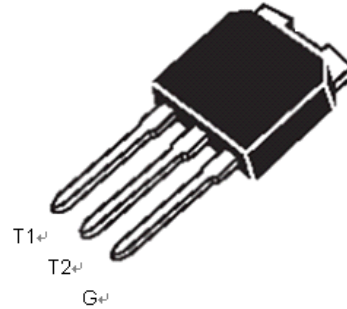
Different gate current sensitivities are available, allowing optimized performances when controlled directly from microcontrollers.

MAIN FEATURES

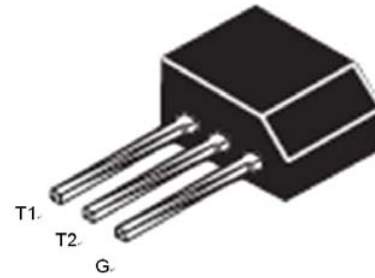
Symbol	Value	Unit
$I_{T(RMS)}$	4	A
$V_{DRM}/V_{RRM}$	600	V
$I_{GT}$	5-25	mA



TO-251( IPAK)



TO-202-3



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit	
Storage junction temperature range	Tstg	- 40 to +150	°C	
Operating junction temperature range	Tj	- 40 to +125	°C	
Repetitive Peak Off-state Voltage	Tj=25°C	V <sub>DRM</sub>	600	V
Repetitive Peak Reverse Voltage		V <sub>RRM</sub>	600	
RMS on-state current (180° conduction angle)	Tl=30°C	$I_{T(RMS)}$	4	A
Non repetitive surge peak on-state current (full cycle Tj initial=25°C)	tp=20ms	$I_{TSM}$	20	A
	tp=16.7ms		21	
I <sup>2</sup> t Value for fusing	tp=10ms	I <sup>2</sup> t	2.2	A <sup>2</sup> s
Critical rate of rise of on-state current I <sub>G</sub> =2×I <sub>GT</sub> , tr≤100 ns, f=120Hz, Tj=125 °C	dI /dt	20	A/us	
Peak gate current tp=20us, Tj=125 °C	I <sub>GM</sub>	1.2	A	
Average gate power dissipation Tj=125 °C	P <sub>G(AV)</sub>	0.2	W	

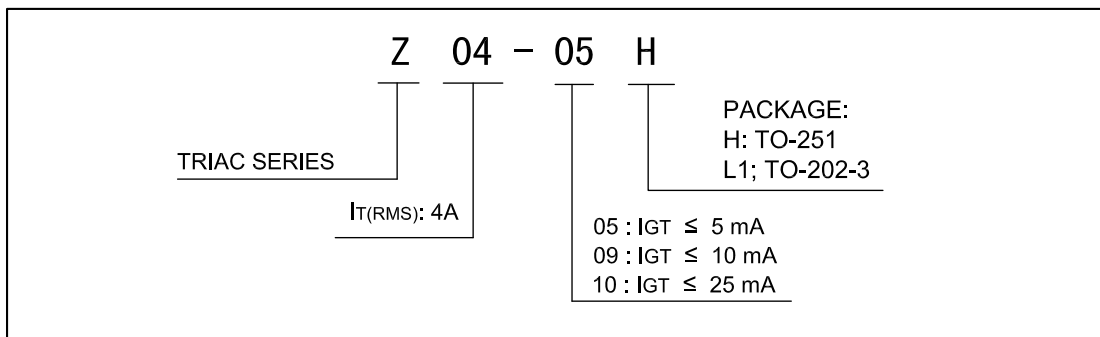
ELECTRICAL CHARACTERISTICS( $T_j=25\text{ }^\circ\text{C}$  unless otherwise specified)

Symbol	Test Condition	Quadrant		Z04 × ×			Unit
				05	09	10	
$I_{GT}$	$V_D=12V$ $R_L=33\Omega$	ALL	Max.	5	10	25	mA
$V_{GT}$		ALL	Max.	1.3			V
$V_{GD}$	$V_D=V_{DRM}$ $R_L=3.3K\Omega$ $T_j=125\text{ }^\circ\text{C}$	ALL	Min.	0.2			V
$I_L$	$I_G=1.2 I_{GT}$	I - II - III	Max.	10	15	25	mA
		IV		15	25	35	
$I_H$	$I_T=50\text{mA}$		Max.	5	10	25	mA
$V_{TM}$	$I_T=5.5A$ $t_p=380\mu\text{s}$	$T_j=25\text{ }^\circ\text{C}$	Max.	2.0			V
$dV/dt$	$V_D=67\%V_{DRM}$ Gate open	$T_j=110\text{ }^\circ\text{C}$	Min.	20	100	200	V/ $\mu\text{s}$
$(dV/dt)_c$	$(dI/dt)_c=1.8A/ms$	$T_j=110\text{ }^\circ\text{C}$	Min.	1	2	5	V/ $\mu\text{s}$
$I_{DRM}$ $I_{RRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25\text{ }^\circ\text{C}$	Max.	5			$\mu\text{A}$
		$T_j=125\text{ }^\circ\text{C}$		0.5			mA

## THERMAL RESISTANCES

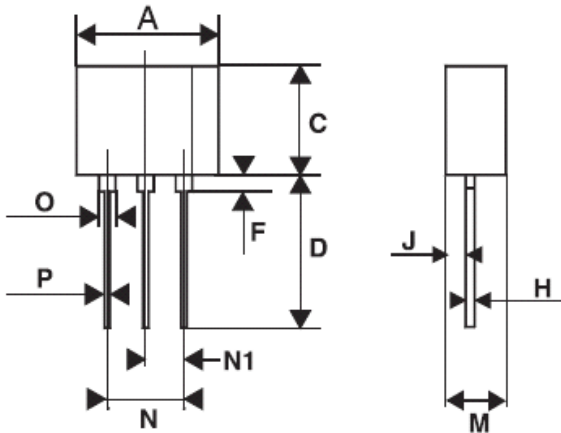
Symbol	Parameter	Value	Unit
$R_{th(J-L)}$	Junction to lead(AC)	15	$^\circ\text{C/W}$

## ORDERING INFORMATION



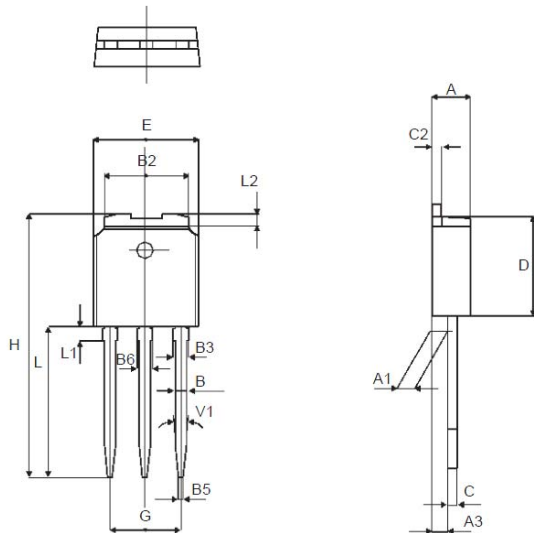
PACKAGE MECHANICAL DATA

TO-202-3



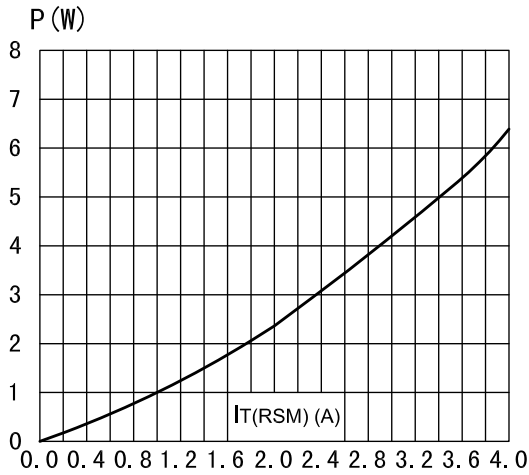
REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			10.1			0.398
C		7.3			0.287	
D		10.5			0.413	
F			1.5			0.059
H		0.51			0.020	
J		1.5			0.059	
M		4.5			0.177	
N			5.3			0.209
N1		2.54			0.100	
O			1.4			0.055
P			0.7			0.028

TO-251( IPAK)

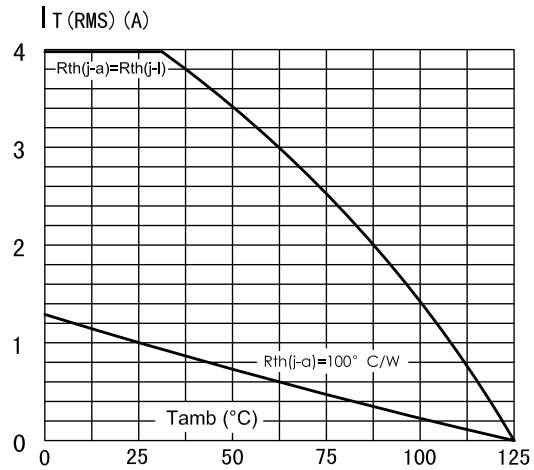


REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A3	0.7		1.3	0.027		0.051
B	0.64		0.9	0.025		0.035
B2	5.2		5.4	0.204		0.212
B3			0.85			0.033
B5		0.3			0.035	
B6			0.95			0.037
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	15.9		16.3	0.626		0.641
L	9		9.4	0.354		0.370
L1	0.8		1.2	0.031		0.047
L2		0.8	1		0.031	0.039
V1		10°			10°	

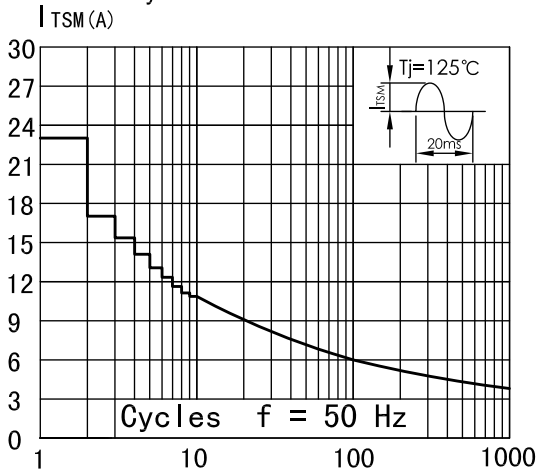
**Fig. 1:** Maximum average power dissipation versus average on-state current.



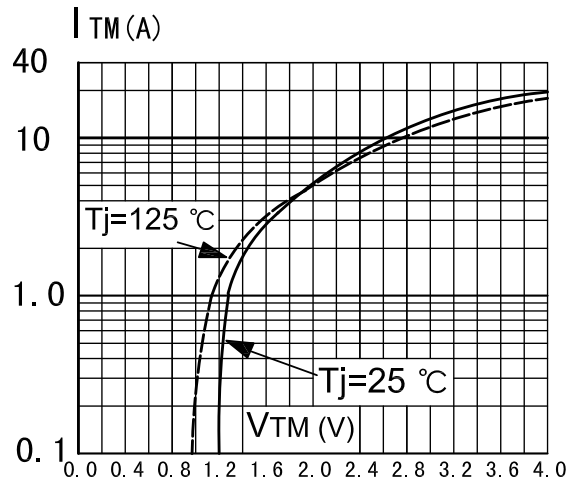
**Fig. 2:** RMS on-state current versus ambient temperature (full cycle).



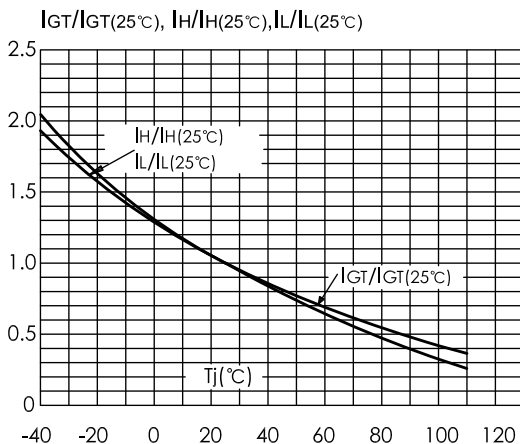
**Fig. 3:** Surge peak on-state current versus number of cycles.



**Fig. 4:** On-state characteristics (maximum values).



**Fig. 5:** Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).



**Fig. 6:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$ .

