

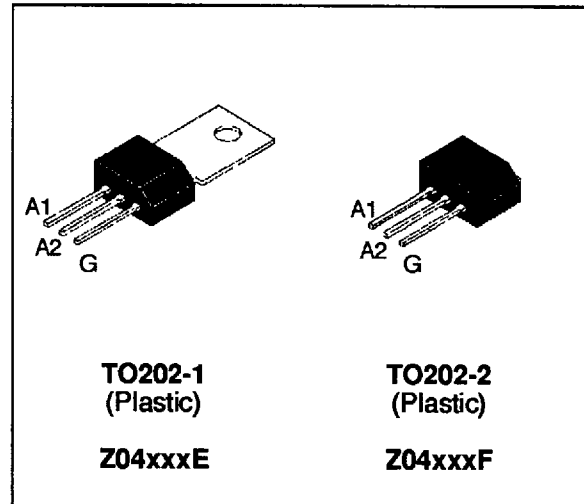
SENSITIVE GATE TRIACS

FEATURES

- $I_{T(RMS)} = 4A$
- $V_{DRM} = 400V$ to $800V$
- $I_{GT} \leq 3mA$ to $\leq 10mA$

DESCRIPTION

The Z04xxxE/F series of triacs uses a high performance TOP GLASS PNP technology. These parts are intended for general purpose applications where gate high sensitivity is required.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	Z04xxxE/F	Tc= 75 °C	4	A
		Z04xxxF	Ta= 25 °C	0.95	
I_{TSM}	Non repetitive surge peak on-state current (Tj initial = 25°C)	tp = 8.3 ms		22	A
		tp = 10 ms		20	
I^2t	I^2t Value for fusing		tp = 10 ms	2	A ² s
di/dt	Critical rate of rise of on-state current Ig = 50 mA dig /dt = 0.1 A/μs.	Repetitive F = 50 Hz		10	A/μs
		Non Repetitive		50	
Tstg Tj	Storage and operating junction temperature range			- 40, + 150 - 40, + 125	°C
TI	Maximum lead temperature for soldering during 10s at 4.5mm from case			260	°C

Symbol	Parameter	Voltage				Unit
		D	M	S	N	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ C$	400	600	700	800	V

Z04xxxE/F**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
Rth(j-a)	Junction to ambient	Z04xxxE	80	°C/W
		Z04xxxF	100	
Rth(j-c)	Junction to case for D.C		10	°C/W
Rth(j-c)	Junction to case for A.C 360° conduction angle (F=50Hz)		7.5	°C/W

GATE CHARACTERISTICS (maximum values)

$P_G (AV) = 0.2 \text{ W}$ $P_{GM} = 3 \text{ W}$ ($t_p = 20 \mu\text{s}$) $I_{GM} = 1.2 \text{ A}$ ($t_p = 20 \mu\text{s}$)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Sensitivity			Unit
					02	05	09	
I _{GT}	V _D =12V (DC) R _L =33Ω	T _j = 25°C	I-II-III-IV	MAX	3	5	10	mA
V _{GT}	V _D =12V (DC) R _L =33Ω	T _j = 25°C	I-II-III-IV	MAX	1.5			V
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ	T _j = 125°C	I-II-III-IV	MIN	0.2			V
t _{gt}	V _D =V _{DRM} I _G = 40mA I _T = 5.5A di _G /dt = 0.5A/μs	T _j = 25°C	I-II-III-IV	TYP	2			μs
I _H *	I _T = 50 mA Gate open	T _j = 25°C		MAX	3	5	10	mA
I _L	I _G = 1.2 I _{GT}	T _j = 25°C	I-III-IV	TYP	3	5	10	mA
			II	TYP	6	10	20	
V _{TM} *	I _{TM} = 5.5A tp= 380μs	T _j = 25°C		MAX	2			V
I _{DRM} I _{RRM}	V _D = V _{DRM} V _R = V _{RRM}	T _j = 25°C		MAX	5			μA
		T _j = 110°C		MAX	200			
dV/dt *	V _D =67%V _{DRM} Gate open	T _j = 110°C		MIN	10	20	100	V/μs
				TYP	20	50	150	
(dV/dt)c *	(di/dt)c = 0.55 A/ms	T _j = 110°C		MIN	1	1	2	V/μs
	(di/dt)c = 1.8 A/ms			TYP	1	1	2	

* For either polarity of electrode A_2 voltage with reference to electrode A_1

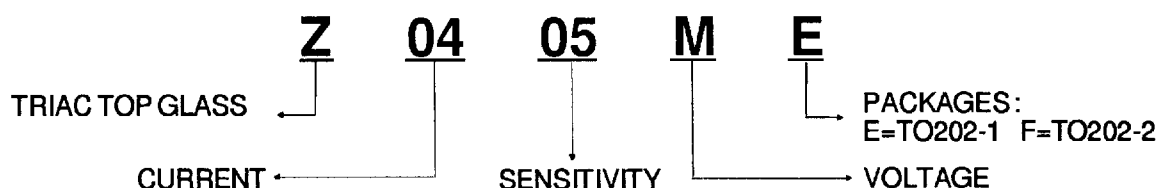
ORDERING INFORMATION

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

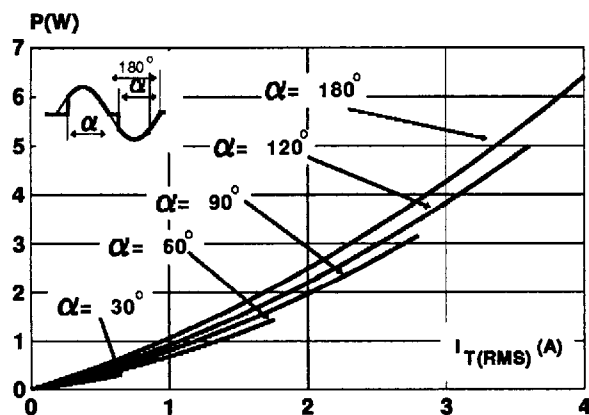


Fig.3 : Maximum RMS power dissipation versus RMS on-state current.

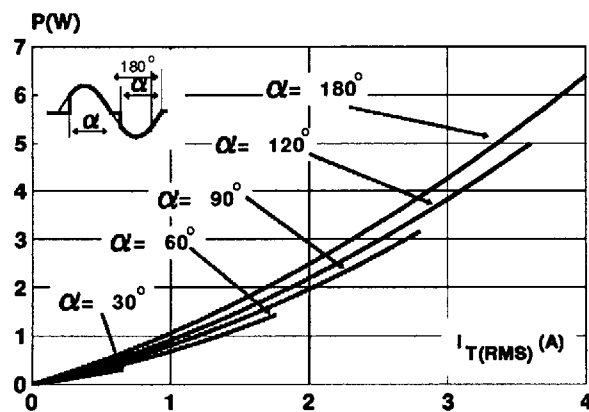


Fig.5 : RMS on-state current versus case temperature (TO202-1).

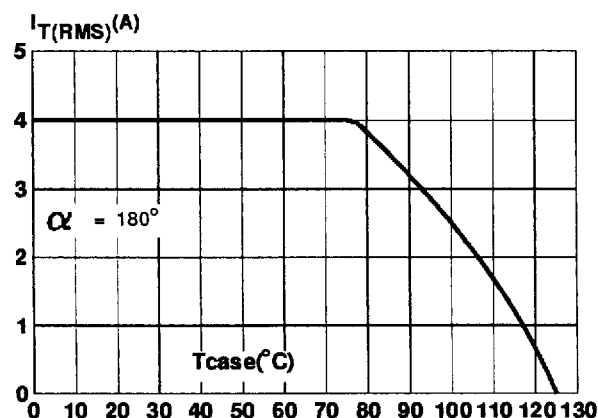


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperature (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (TO202-1).

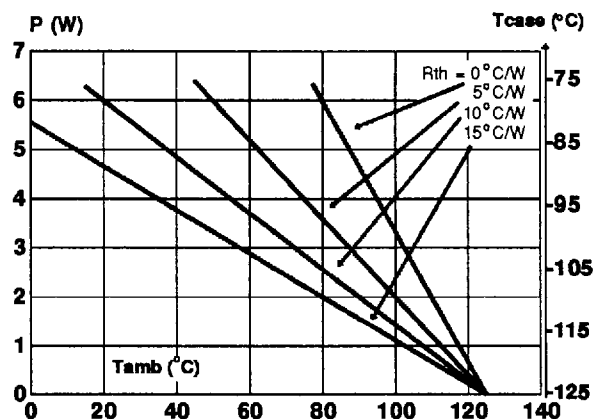


Fig.4 : Correlation between maximum RMS power dissipation and maximum allowable temperature (T_{amb} and T_{case}) (TO202-2).

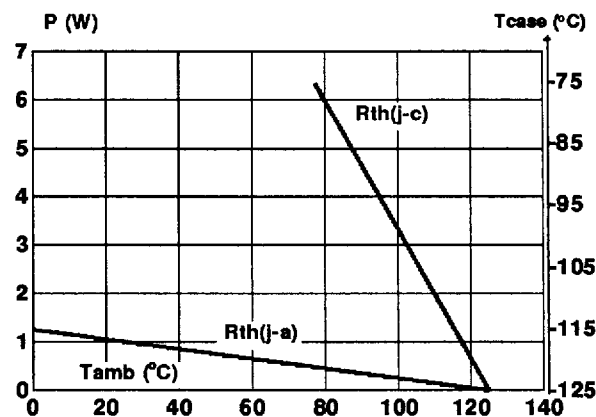


Fig.6 : RMS on-state current versus case temperature (TO202-2).

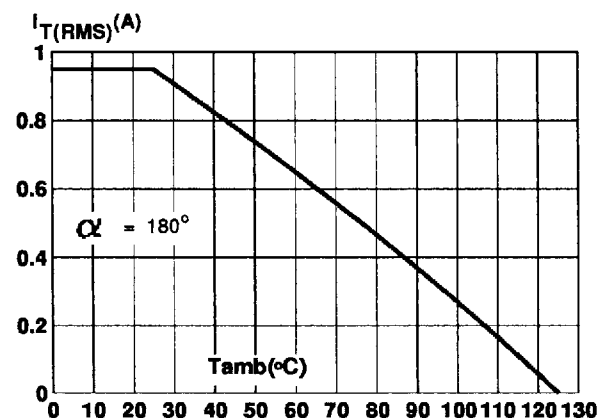


Fig.7 : Relative variation of thermal impedance versus pulse duration (TO202-1).

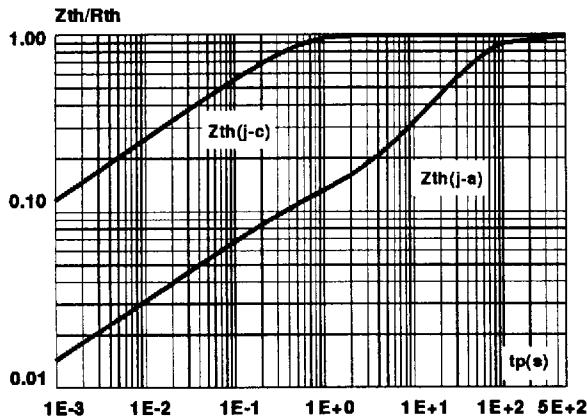


Fig.8 : Relative variation of thermal impedance junction to ambient versus pulse duration (TO202-2).

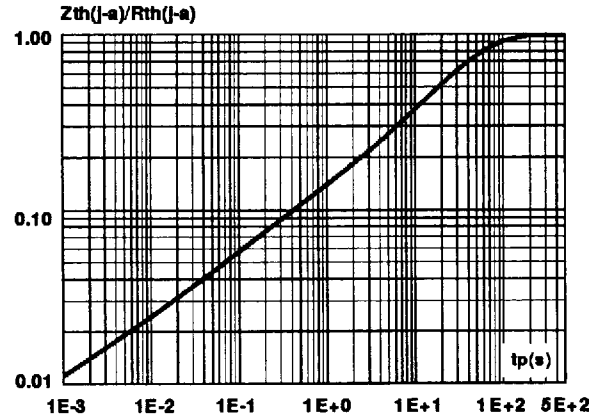


Fig.9 : Relative variation of gate trigger current and holding current versus junction temperature.

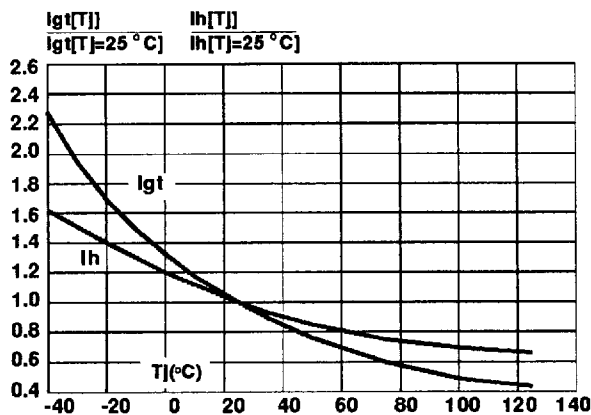


Fig.10 : Non repetitive surge peak on-state current versus number of cycles.

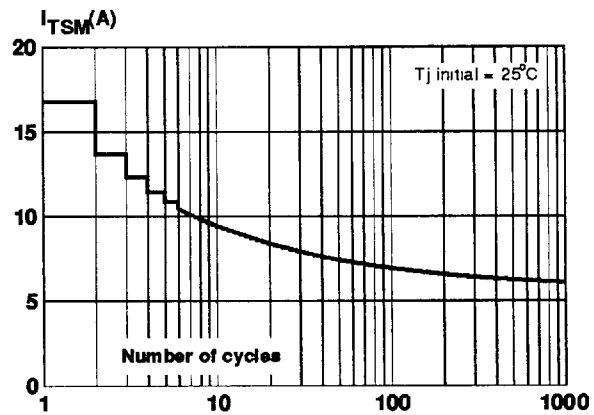


Fig.11 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t_p \leq 10\text{ms}$, and corresponding value of I^2t .

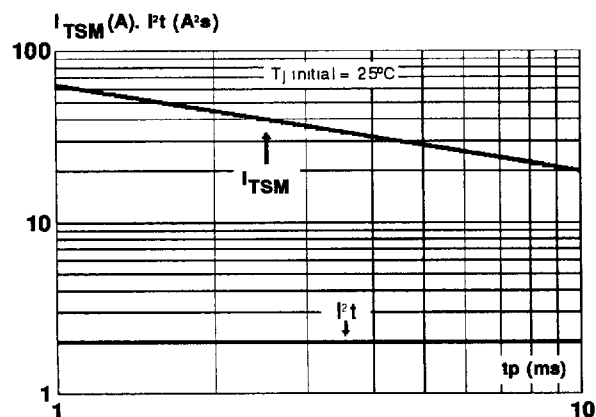
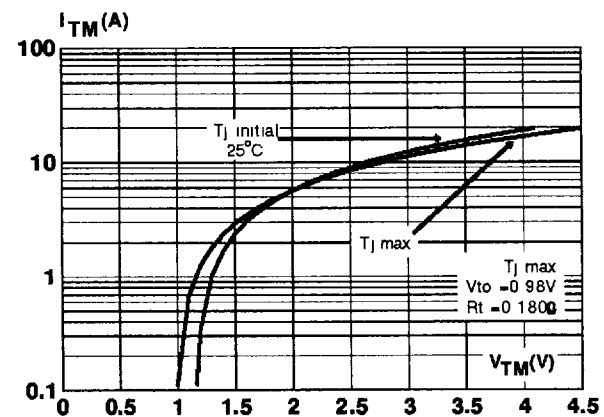
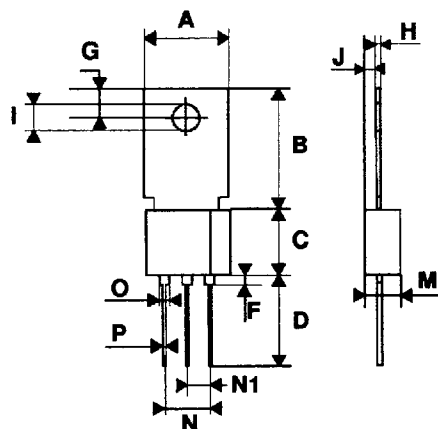


Fig.12 : On-state characteristics (maximum values).



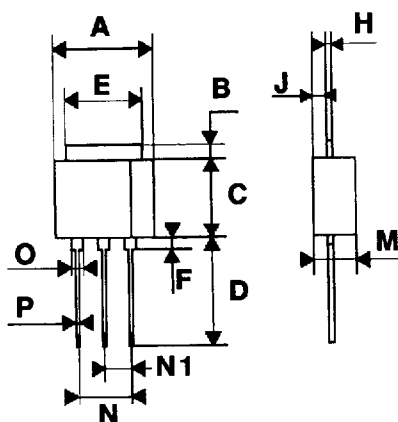
PACKAGE MECHANICAL DATA
 TO202-1 (Plastic)


REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A			10.1			0.398
B	13.7			0.540		
C	7.3			0.287		
D	10.5			0.413		
F			1.5			0.059
G	3.2			0.126		
H	0.51			0.020		
I		3.16	3.20		0.124	0.126
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

Marking : type number
 Weight : 1.4 g

Z04xxxE/F

PACKAGE MECHANICAL DATA
TO202-2 (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A			10.1			0.398
B	1.2			0.047		
C	7.3			0.287		
D	10.5			0.413		
E	7.4			0.290		
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

Marking : type number
Weight : 1.0 g

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