



Z0410xE/F

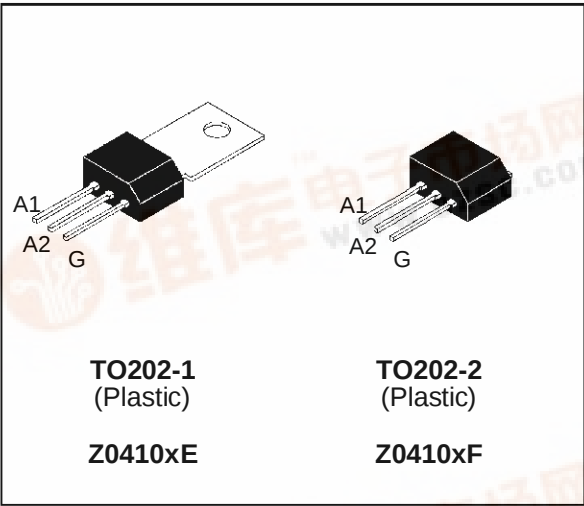
STANDARD TRIACS

FEATURES

- $I_{T(RMS)} = 4A$
- $V_{DRM} = 400V \text{ to } 800V$
- $I_{GT} \leq 25mA$

DESCRIPTION

The Z0410xE/F series of triacs uses a high performance TOP GLASS PNP technology. These parts are intended for general purpose switching and phase control applications.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
I _{T(RMS)}	RMS on-state current (360° conduction angle)	Z0410xE/F	T _c = 75 °C	4	A
		Z0410xF	T _a = 25 °C	0.95	
I _{TSM}	Non repetitive surge peak on-state current (T _j initial = 25°C)	t _p = 8.3 ms		22	A
		t _p = 10 ms		20	
I ² t	I ² t Value for fusing		t _p = 10 ms	2	A ² s
di/dt	Critical rate of rise of on-state current I _G = 50 mA di _G /dt = 0.1 A/μs.	Repetitive F = 50 Hz		10	A/μs
		Non Repetitive		50	
T _{stg} T _j	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



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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth(j-a)	Junction to ambient	Z0410xE	80	°C/W
		Z0410xF	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 W P_{GM} = 3 W (tp = 20 μ s) I_{GM} = 1.2 A (tp = 20 μ s)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Sensitivity	Unit
					10	
I_{GT}	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	I-II-III-IV	MAX	25	mA
V_{GT}	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	I-II-III-IV	MAX	1.5	V
V_{GD}	$V_D=V_{DRM}$ $R_L=3.3k\Omega$	$T_j=125^\circ C$	I-II-III-IV	MIN	0.2	V
tgt	$V_D=V_{DRM}$ $I_G=40mA$ $I_T=5.5A$ $dI_G/dt=0.5A/\mu s$	$T_j=25^\circ C$	I-II-III-IV	TYP	2	μs
I_H^*	$I_T=50mA$ Gate open	$T_j=25^\circ C$		MAX	25	mA
I_L	$I_G=1.2I_{GT}$	$T_j=25^\circ C$	I-III-IV	TYP	25	mA
			II	TYP	50	
V_{TM}^*	$I_{TM}=5.5A$ tp = 380 μs	$T_j=25^\circ C$		MAX	2	V
I_{DRM} I_{RRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$		MAX	5	μA
		$T_j=110^\circ C$		MAX	200	
dV/dt *	$V_D=67\%V_{DRM}$ Gate open	$T_j=110^\circ C$		MIN	200	V/ μs
				TYP	400	
(dV/dt)c *	(dI/dt)c = 1.8 A/ms	$T_j=110^\circ C$		MIN	5	V/ μs

* For either polarity of electrode A₂ voltage with reference to electrode A₁

ORDERING INFORMATION

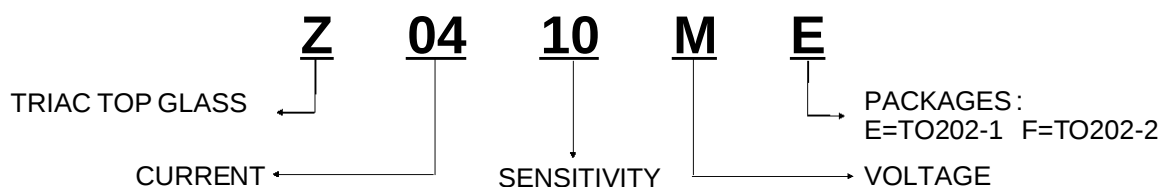


Fig.1 : Maximum RMS power dissipation versus RMS on-state current.

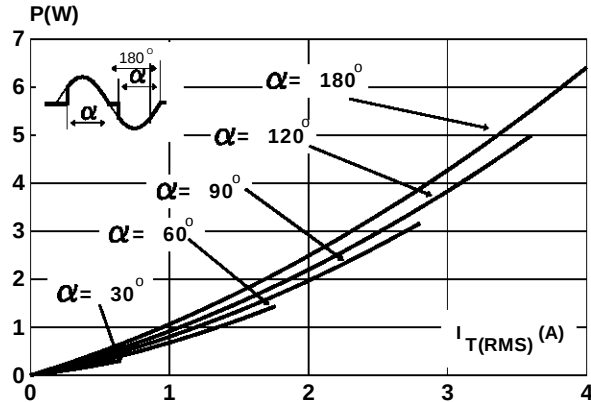


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperature (T_{amb} and T_{case}) for different thermal resistances heatsink + contact (TO202-1).

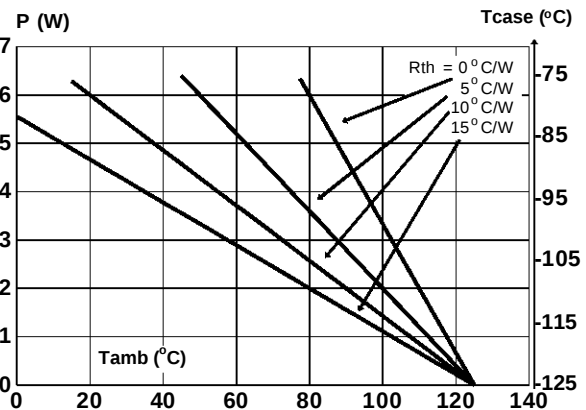


Fig.3 : Maximum RMS power dissipation versus RMS on-state current.

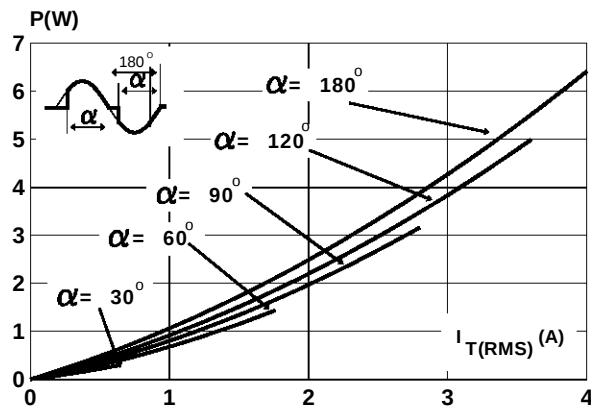


Fig.4 : Correlation between maximum RMS power dissipation and maximum allowable temperature (T_{amb} and T_{case}) (TO202-2).

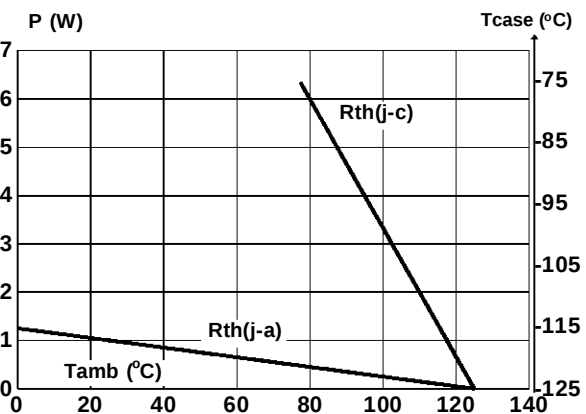


Fig.5 : RMS on-state current versus case temperature (TO202-1).

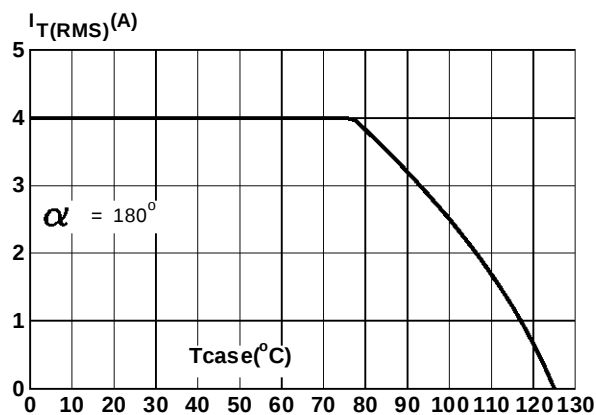
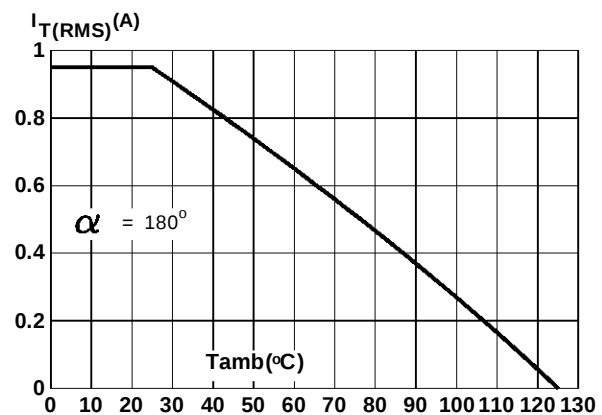


Fig.6 : RMS on-state current versus case temperature (TO202-2).



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Fig.6 : Relative variation of thermal impedance versus pulse duration (TO202-1).

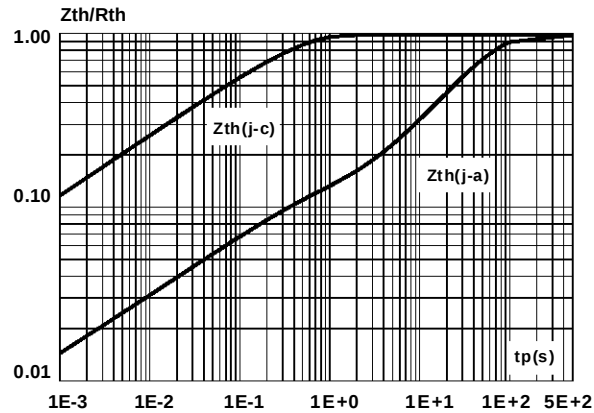


Fig.7 : Relative variation of thermal impedance junction to ambient versus pulse duration (TO202-2).

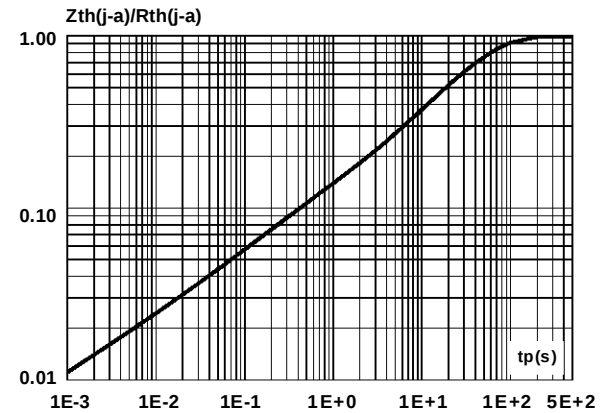


Fig.9 : Relative variation of gate trigger current and holding current versus junction temperature.

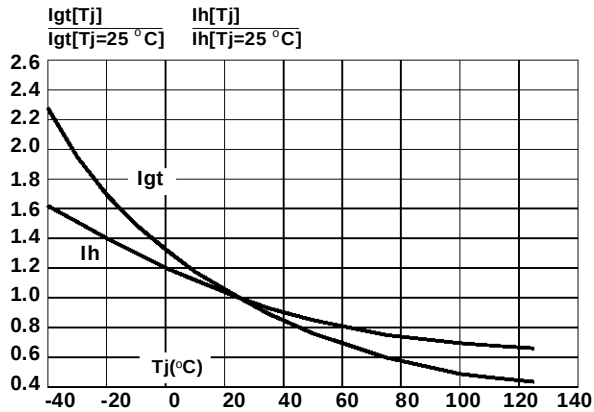


Fig.10 : Non repetitive surge peak on-state current versus number of cycles.

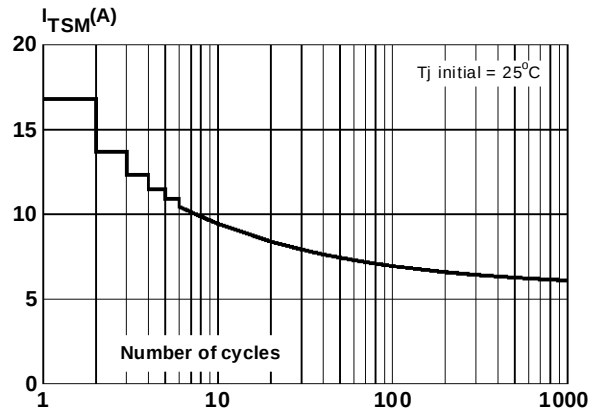


Fig.11 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t_p \leq 10\text{ms}$, and corresponding value of I^2t .

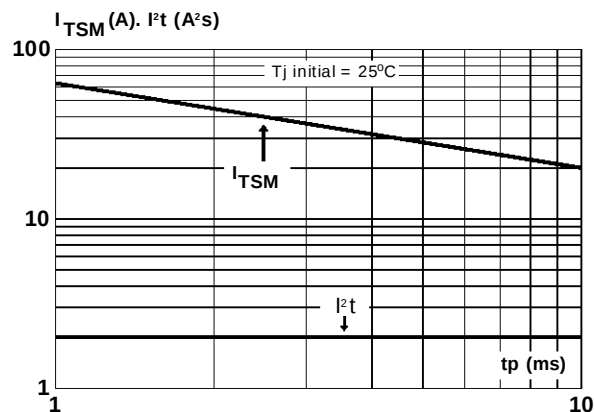
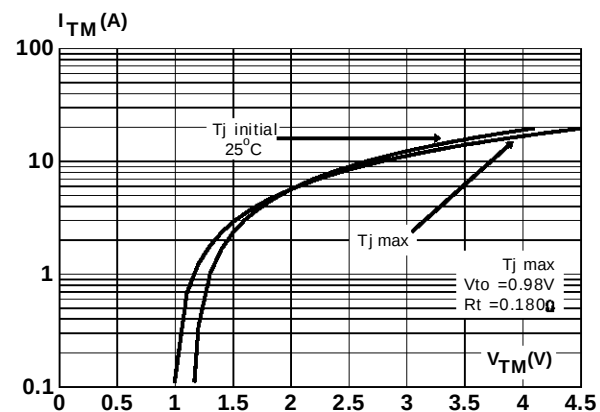
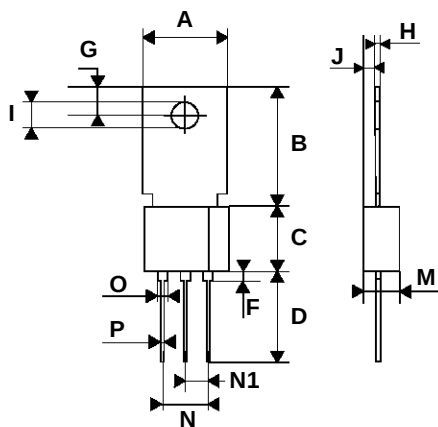


Fig.12 : On-state characteristics (maximum values).



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

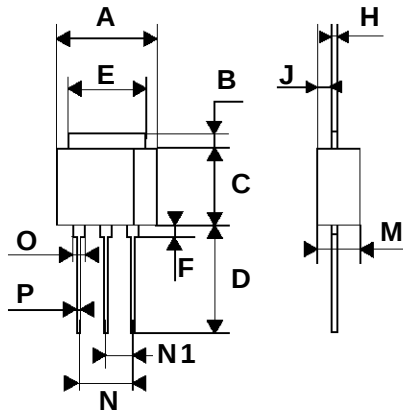
Marking : type number

Weight : 1.4 g

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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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