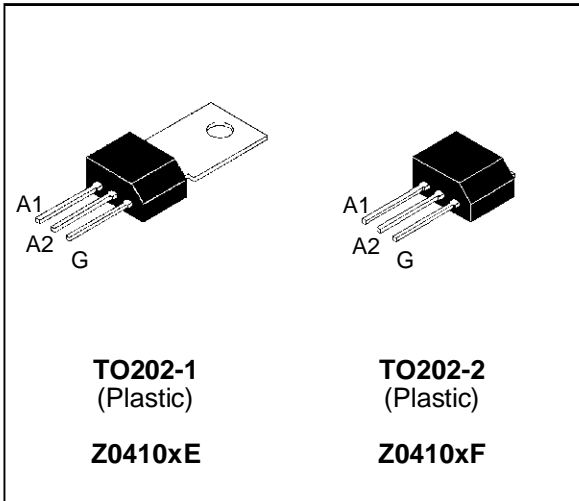


**STANDARD TRIACS****FEATURES**

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

**DESCRIPTION**

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

**ABSOLUTE RATINGS** (limiting values)

Symbol	Parameter			Value	Unit
I <sub>T(RMS)</sub>	RMS on-state current (360° conduction angle)	Z0410xE/F	T <sub>c</sub> = 75 °C	4	A
		Z0410xF	T <sub>a</sub> = 25 °C	0.95	
I <sub>TSM</sub>	Non repetitive surge peak on-state current (T <sub>j</sub> initial = 25°C )	tp = 8.3 ms		22	A
		tp = 10 ms		20	
I <sup>2</sup> t	I <sup>2</sup> t Value for fusing	tp = 10 ms		2	A <sup>2</sup> s
di/dt	Critical rate of rise of on-state current I <sub>G</sub> = 50 mA      dig /dt = 0.1 A/μs.	Repetitive F = 50 Hz		10	A/μs
		Non Repetitive		50	
T <sub>stg</sub> T <sub>j</sub>	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

## Z0410xE/F

### 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)

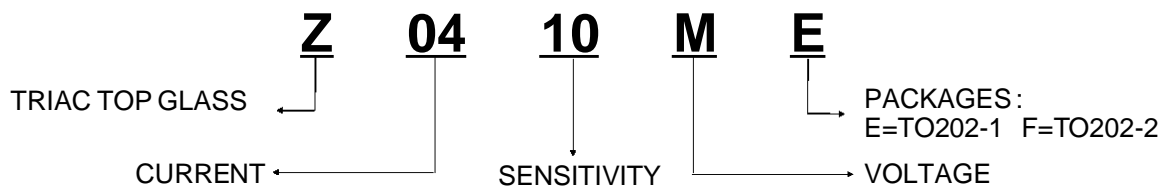
$P_G (AV) = 0.2 \text{ W}$   $P_{GM} = 3 \text{ W}$  ( $t_p = 20 \mu\text{s}$ )  $I_{GM} = 1.2 \text{ A}$  ( $t_p = 20 \mu\text{s}$ )

### ELECTRICAL CHARACTERISTICS

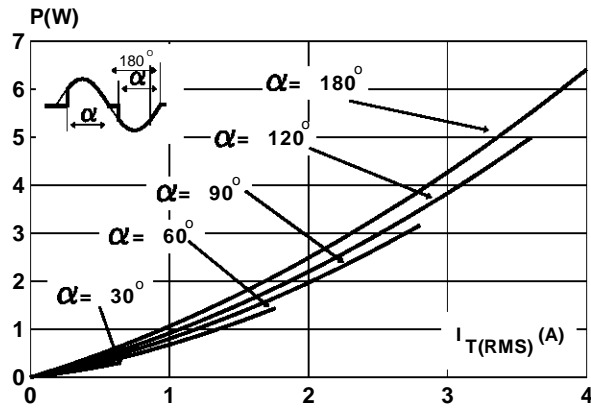
Symbol	Test Conditions		Quadrant		Sensitivity	Unit
					10	
$I_{GT}$	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III-IV	MAX	25	mA
$V_{GT}$	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III-IV	MAX	1.5	V
$V_{GD}$	$V_D = V_{DRM}$ $R_L = 3.3\text{k}\Omega$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

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

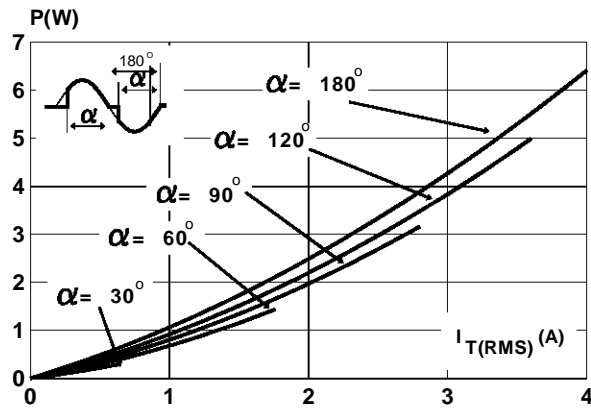
### ORDERING INFORMATION



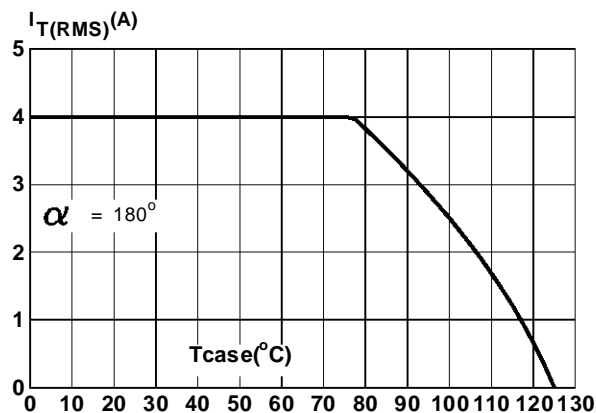
**Fig.1 :** Maximum RMS power dissipation versus RMS on-state current.



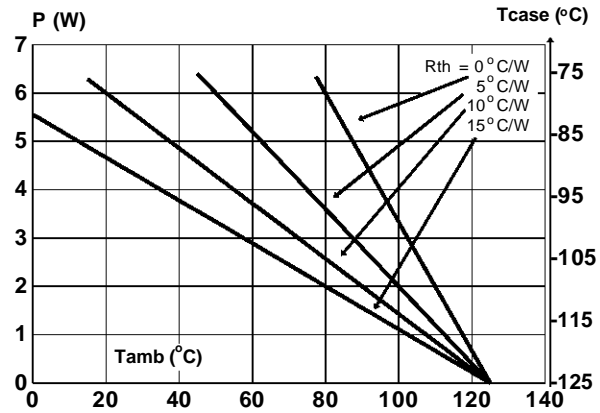
**Fig.3 :** Maximum RMS power dissipation versus RMS on-state current.



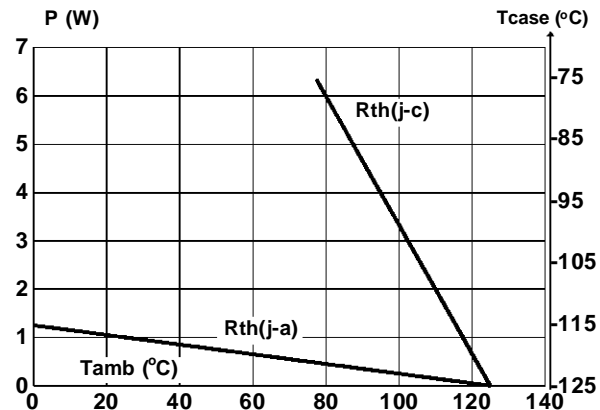
**Fig.5 :** RMS on-state current versus case temperature (TO202-1).



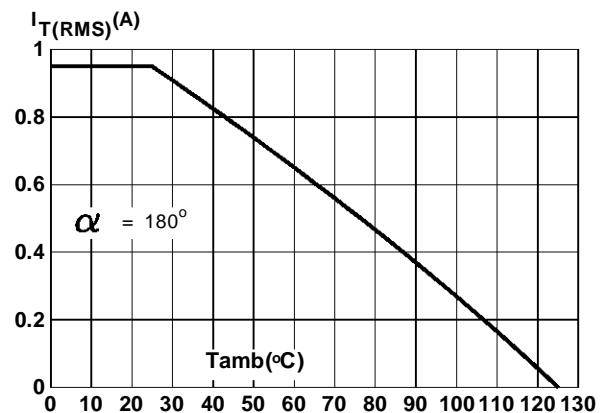
**Fig.2 :** Correlation between maximum RMS power dissipation and maximum allowable temperature ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact (TO202-1).



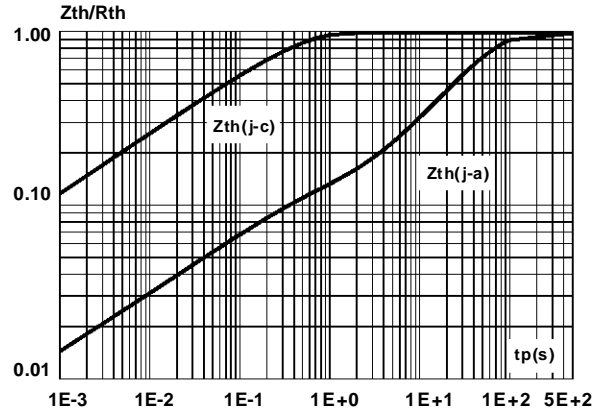
**Fig.4 :** Correlation between maximum RMS power dissipation and maximum allowable temperature ( $T_{amb}$  and  $T_{case}$ ) (TO202-2).



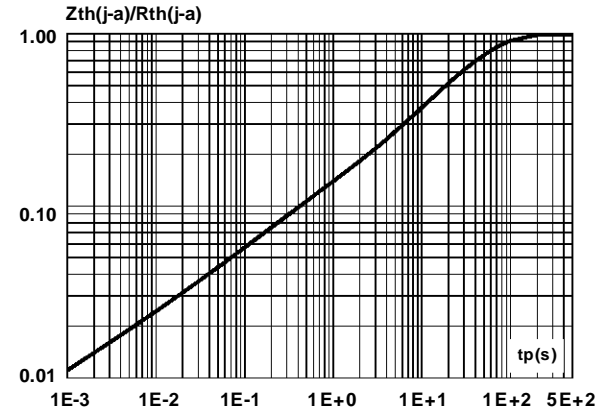
**Fig.6 :** RMS on-state current versus case temperature (TO202-2).



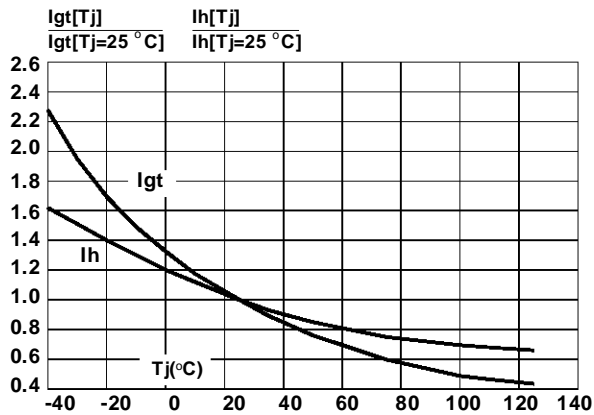
**Fig.6** : Relative variation of thermal impedance versus pulse duration (TO202-1).



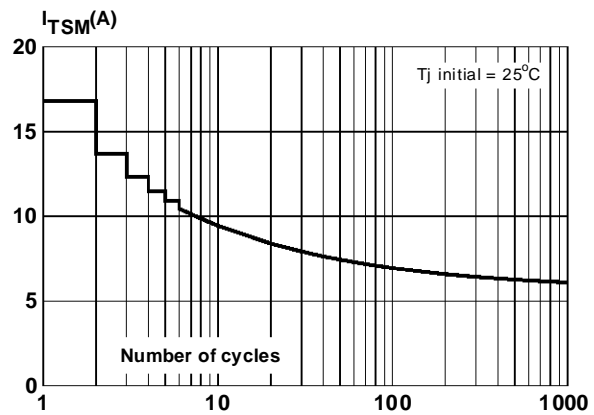
**Fig.7** : Relative variation of thermal impedance junction to ambient versus pulse duration (TO202-2).



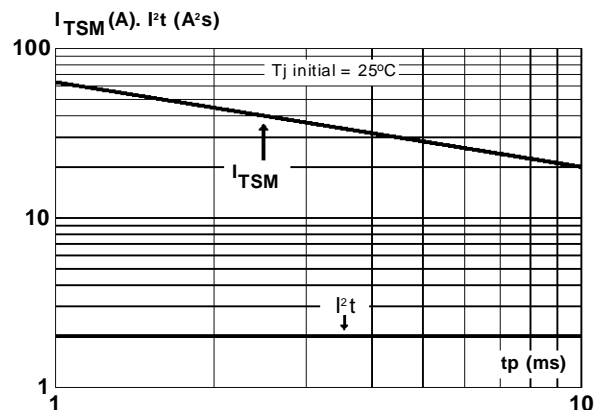
**Fig.9** : Relative variation of gate trigger current and holding current versus junction temperature.



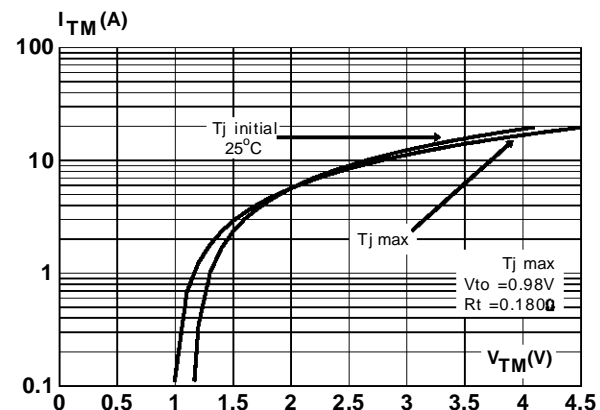
**Fig.10** : Non repetitive surge peak on-state current versus number of cycles.



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

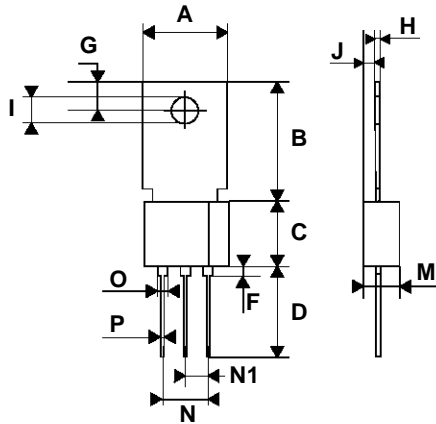


**Fig.12** : On-state characteristics (maximum values).



**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

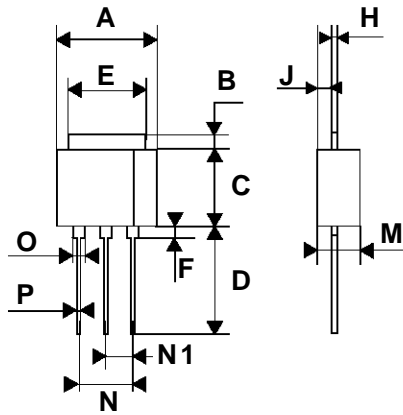
Marking : type number

Weight : 1.4 g

## Z0410xE/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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