

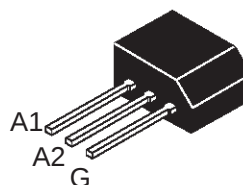
SENSITIVE GATE TRIACS

FEATURES

- $I_{T(RMS)} = 4A$
- $V_{DRM} = 400V$ to $800V$
- $I_{GT} \leq 3mA$ to $\leq 25mA$

DESCRIPTION

The Z04xxxF series of triacs uses a high performance TOP GLASS PNP technology. These parts are intended for general purpose applications where high gate sensitivity or high switching performances are required (like touch dimmers, fan, electrovalve control,...).



TO202-3
(Plastic)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	$T_c = 75\text{ °C}$	4	A
		$T_a = 25\text{ °C}$	0.95	
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25 °C)	$t_p = 8.3\text{ ms}$	22	A
		$t_p = 10\text{ ms}$	20	
I^2t	I^2t Value for fusing	$t_p = 10\text{ ms}$	2	A^2s
dI/dt	Critical rate of rise of on-state current $I_G = 50\text{ mA}$ $dI_G/dt = 0.1\text{ A}/\mu s$.	Repetitive $F = 50\text{ Hz}$	10	$A/\mu s$
		Non Repetitive	50	
T_{stg} T_j	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	$^{\circ}C$
TI	Maximum lead temperature for soldering during 10s at 4.5mm from case		260	$^{\circ}C$

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

Z04xxxF

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	100	°C/W
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

$P_{G(AV)} = 0.2 \text{ W max.}$ $P_{GM} = 3 \text{ W max. (tp = 20 } \mu\text{s)}$ $I_{GM} = 1.2 \text{ A max. (tp = 20 } \mu\text{s)}$

$V_{GD} = 0.2 \text{ Vmin. (V}_D = V_{DRM} \text{ } R_L = 3.3 \text{ k}\Omega \text{ } T_j = 125^\circ\text{C)}$

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Quadrant		Sensitivity				Unit
					02	05	09	10	
I _{GT}	V _D =12V (DC) R _L =33Ω	T _j = 25°C	I-II-III-IV	MAX	3	5	10	25	mA
V _{GT}	V _D =12V (DC) R _L =33Ω	T _j = 25°C	I-II-III-IV	MAX	1.5				V
I _H *	I _T = 50 mA Gate open	T _j = 25°C		MAX	3	5	10	25	mA
I _L	I _G = 1.2 I _{GT}	T _j = 25°C	I-III-IV	MAX	6	10	15	25	mA
			II	MAX	12	15	25	50	
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	200	V/μs
(dV/dt) _c *	(dI/dt) _c = 1.3 A/ms	T _j = 110°C		MIN	0.5	1	2		V/μs
	(dI/dt) _c = 1.8 A/ms	T _j = 110°C		MIN				5	V/μs

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

ORDERING INFORMATION

Z	04	05	M	F
TRIAC TOP GLASS	CURRENT	SENSITIVITY	VOLTAGE	PACKAGE : F=TO202-3

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

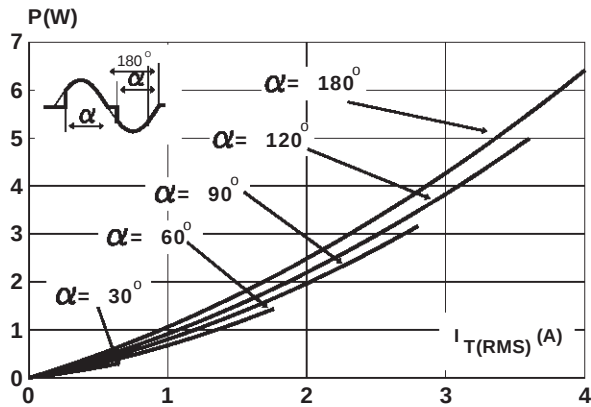


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperature (T_{amb} and T_{case}).

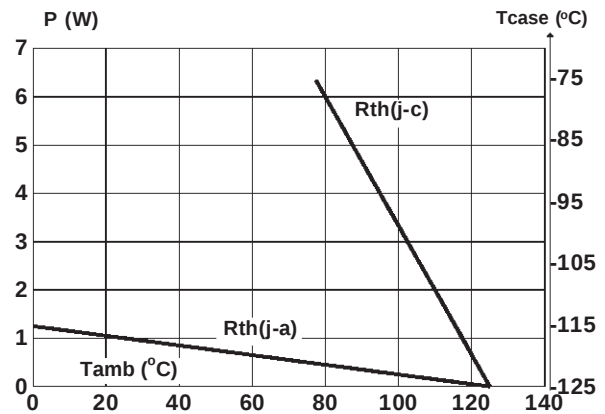


Fig.3 : RMS on-state current versus case temperature.

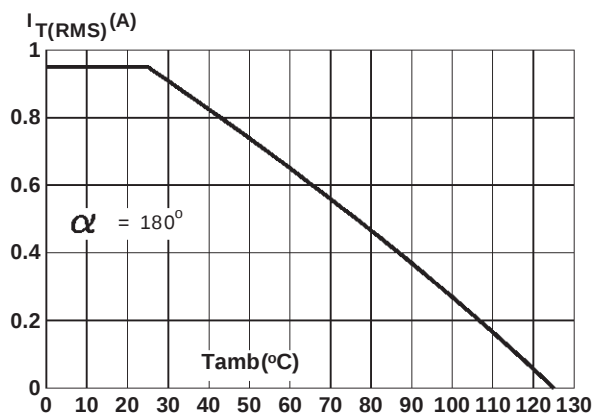


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

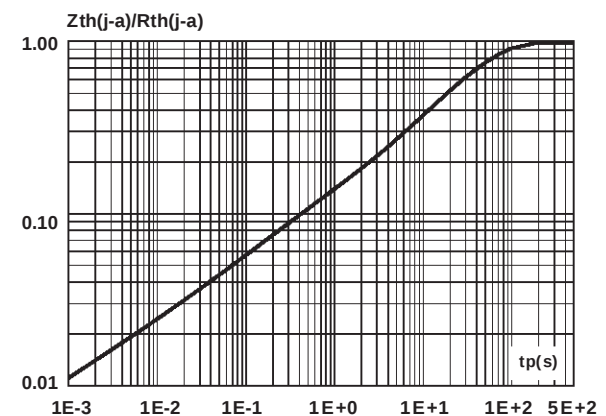


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

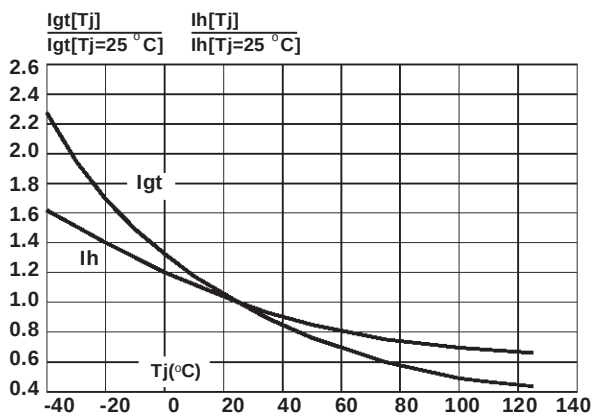
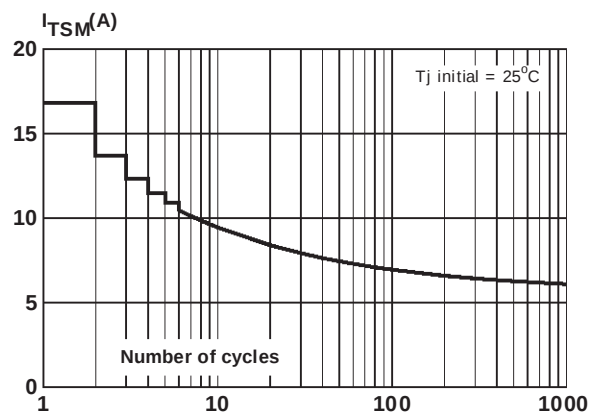


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



Z04xxxF

Fig.7 : 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 .

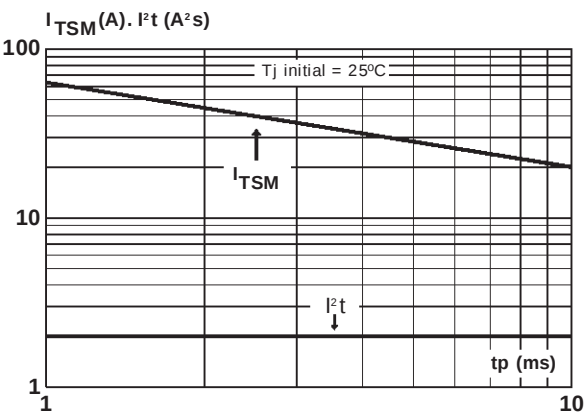
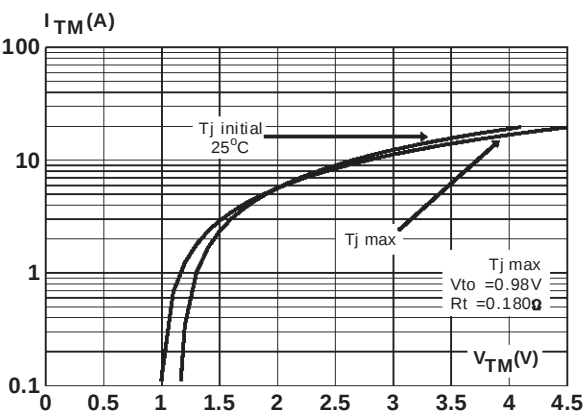
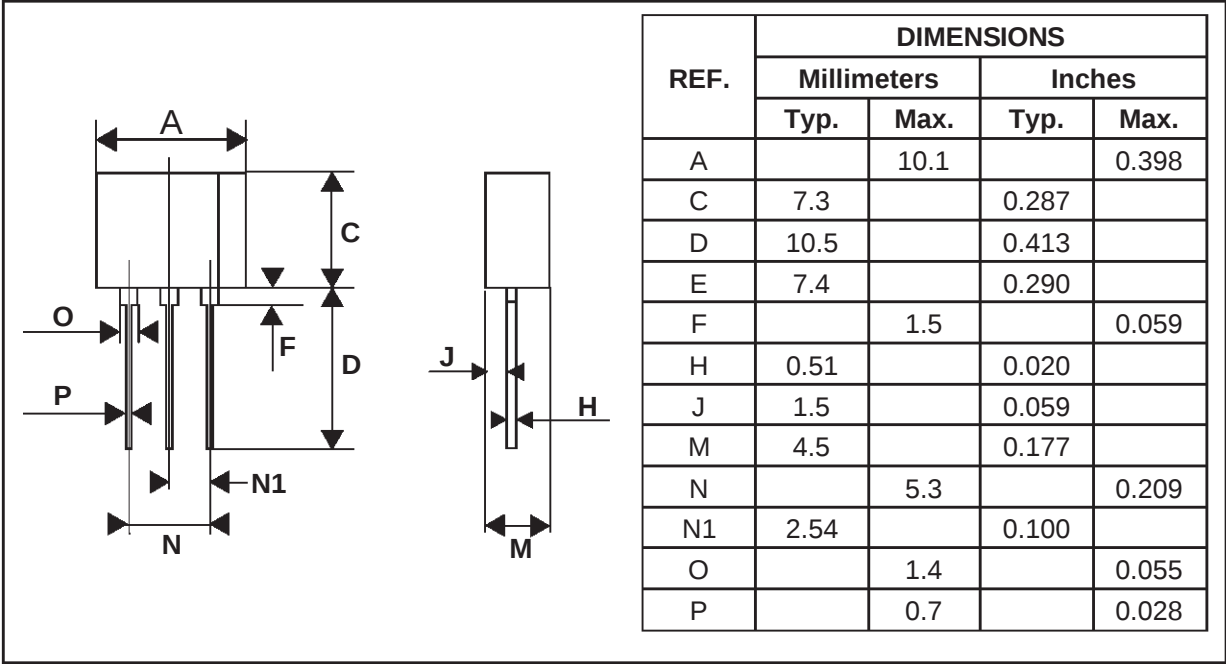


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA
TO202-3 (Plastic)



Marking : type number
Weight : 1 g

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 1998 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Italy - Japan - Korea - Malaysia - Malta - Mexico - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A.

