

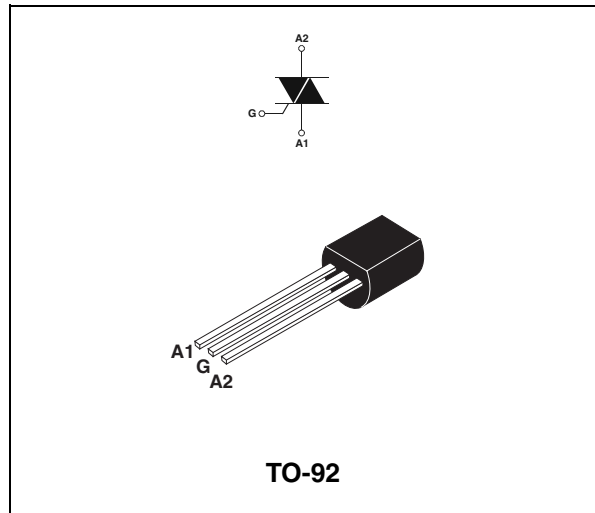
**Table 1: Main Features**

Symbol	Value	Unit
$I_{T(RMS)}$	0.8	A
$V_{DRM}/V_{RRM}$	600	V
$I_{GT}(Q_1)$	5	mA

**DESCRIPTION**

The **Z00607MA** is suitable for low power AC switching applications, such as fan speed, small light controllers...

Thanks to low gate triggering current, it can be directly driven by microcontrollers.



**Table 2: Order Codes**

Part Numbers	Marking
Z00607MA 1BA2	Z0607MA
Z00607MA 2BL2	Z0607MA
Z00607MA 5BL2	Z0607MA

**Table 3: Absolute Maximum Ratings**

Symbol	Parameter		Value	Unit	
$I_{T(RMS)}$	RMS on-state current (full sine wave)		$T_I = 50^\circ\text{C}$	0.8	A
$I_{TSM}$	Non repetitive surge peak on-state current (full cycle, $T_j$ initial = $25^\circ\text{C}$ )	F = 50 Hz	t = 20 ms	9	A
		F = 60 Hz	t = 16.7 ms	9.5	
$I^2t$	$I^2t$ Value for fusing	$t_p = 10$ ms		0.45	$\text{A}^2\text{s}$
di/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$ , $t_r \leq 100$ ns	F = 120 Hz	$T_j = 110^\circ\text{C}$	20	$\text{A}/\mu\text{s}$
$I_{GM}$	Peak gate current	$t_p = 20$ $\mu\text{s}$	$T_j = 110^\circ\text{C}$	1	A
$P_{G(AV)}$	Average gate power dissipation		$T_j = 110^\circ\text{C}$	0.1	W
$T_{stg}$ $T_j$	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 110		$^\circ\text{C}$

**Tables 4: Electrical Characteristics** ( $T_j = 25^\circ\text{C}$ , unless otherwise specified)

Symbol	Test Conditions	Quadrant		Value	Unit
$I_{GT}$ (1)	$V_D = 12\text{ V}$ $R_L = 30\ \Omega$	I - II - III	MAX.	5	mA
		IV		7	
$V_{GT}$		ALL	MAX.	1.3	V
$V_{GD}$	$V_D = V_{DRM}$ $R_L = 3.3\text{ k}\Omega$ $T_j = 110^\circ\text{C}$	ALL	MIN.	0.2	V
$I_H$ (2)	$I_T = 200\text{ mA}$		MAX.	5	mA
$I_L$	$I_G = 1.2 I_{GT}$	I - III - IV	MAX.	10	mA
		II		20	
$dV/dt$ (2)	$V_D = 67\% V_{DRM}$ gate open $T_j = 110^\circ\text{C}$		MIN.	10	V/ $\mu\text{s}$
$(dI/dt)_c$ (2)	$(dV/dt)_c = 0.35\text{ A/ms}$ $T_j = 110^\circ\text{C}$		MIN.	1.5	A/ms

**Table 5: Static Characteristics**

Symbol	Test Conditions			Value	Unit	
$V_{TM}$ (2)	$I_{TM} = 1.1\text{ A}$	$t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX.	1.5	V
$V_{to}$ (2)	Threshold voltage		$T_j = 110^\circ\text{C}$	MAX.	0.95	V
$R_d$ (2)	Dynamic resistance		$T_j = 110^\circ\text{C}$	MAX.	420	m $\Omega$
$I_{DRM}$ $I_{RRM}$	$V_{DRM} = V_{RRM} = 600\text{ V}$		$T_j = 25^\circ\text{C}$	MAX.	5	$\mu\text{A}$
			$T_j = 110^\circ\text{C}$		0.1	mA

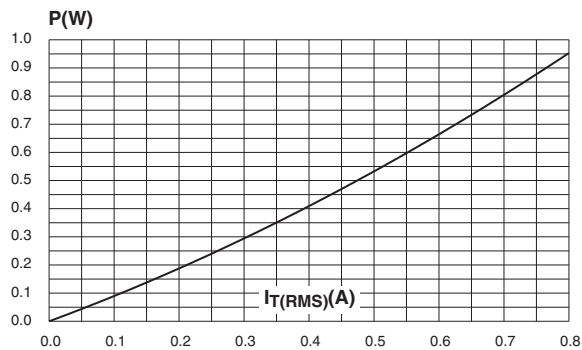
**Note 1:** minimum  $I_{GT}$  is guaranteed at 5% of  $I_{GT}$  max.

**Note 2:** for both polarities of A2 referenced to A1.

**Table 6: Thermal resistances**

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to lead (A.C.)	60	$^\circ\text{C/W}$
$R_{th(j-a)}$	Junction to ambient	150	$^\circ\text{C/W}$

**Figure 1: Maximum power dissipation versus RMS on-state current (full cycle)**



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

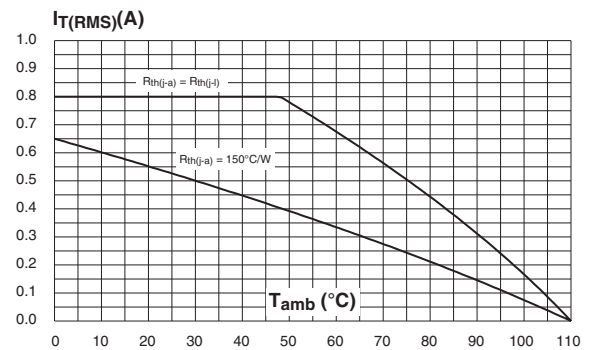


Figure 3: Relative variation of thermal impedance versus pulse duration

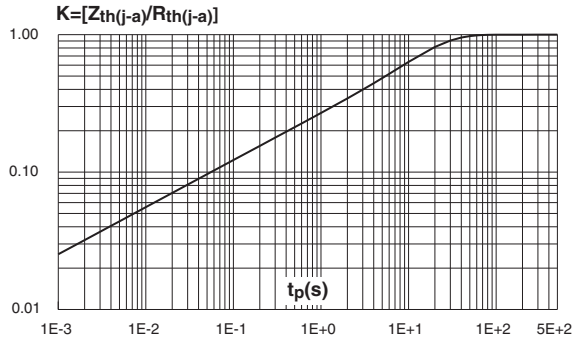


Figure 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values)

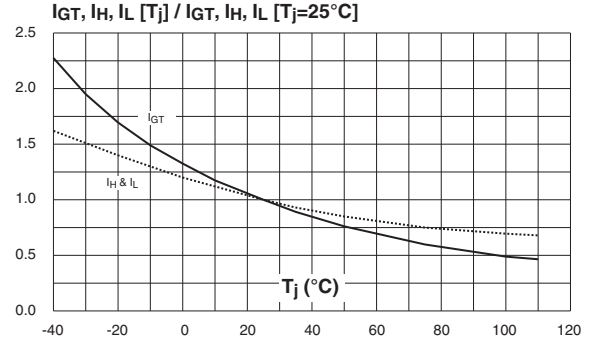


Figure 5: Surge peak on-state current versus number of cycles

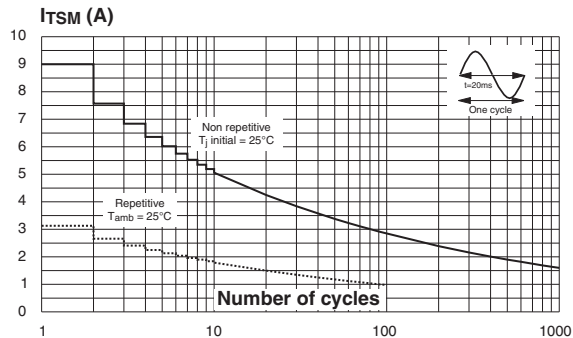


Figure 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10$  ms and corresponding value of  $I^2t$

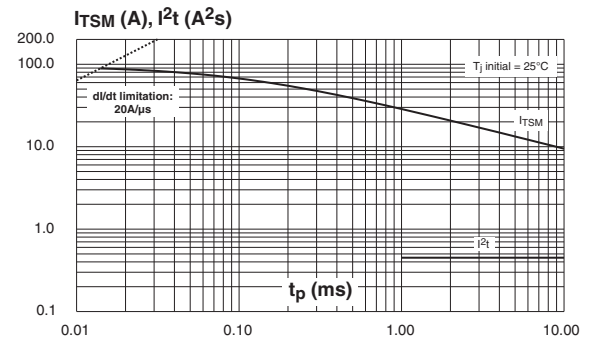


Figure 7: On-state characteristics (maximum values)

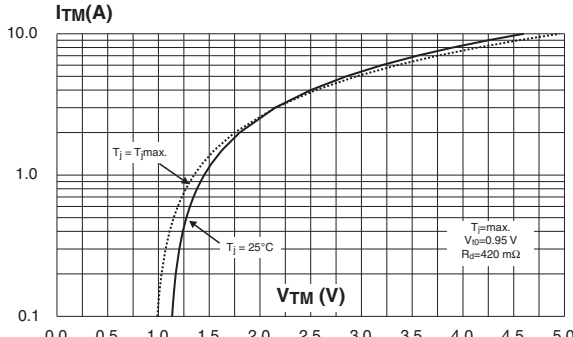
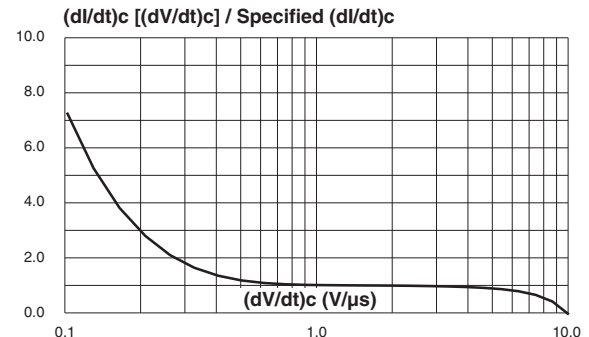
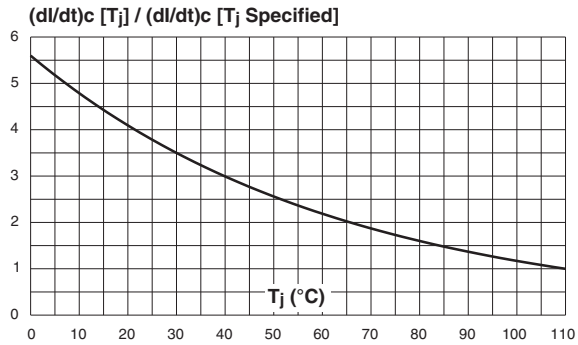


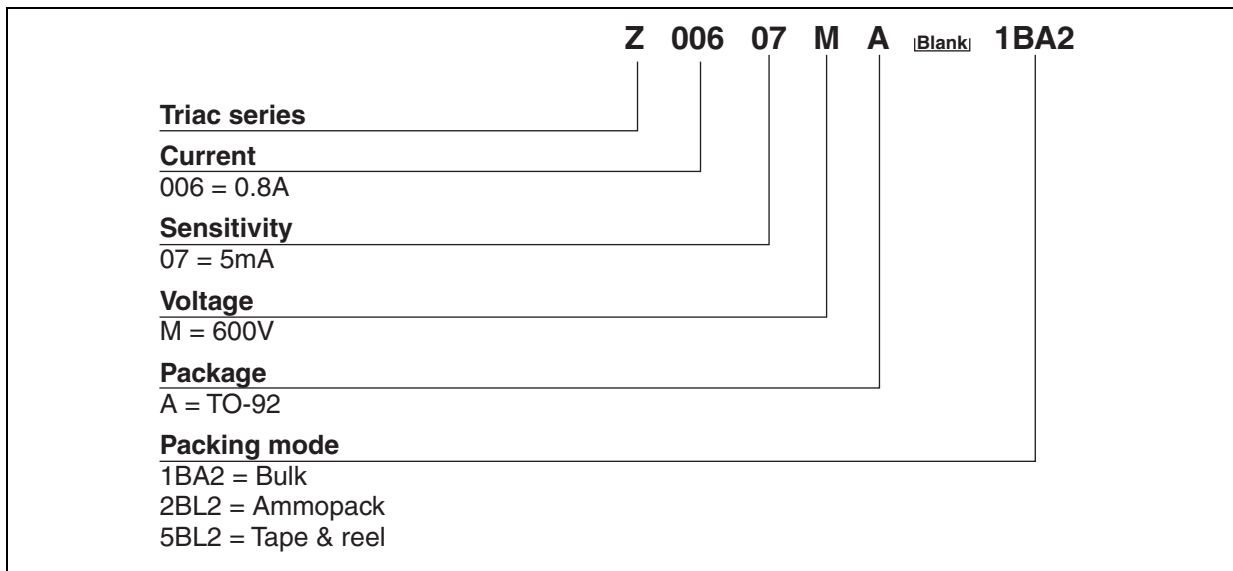
Figure 8: Relative variation of critical rate of decrease of main current versus  $(dV/dt)_c$  (typical values)



**Figure 9: Relative variation of critical rate of decrease of main current versus junction temperature**



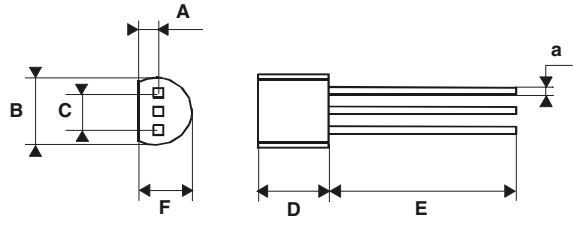
**Figure 10: Ordering Information Scheme**



**Table 7: Product Selector**

Part Number	Voltage	Sensitivity	Type	Package
Z00607MA	600 V	5 mA	Standard	TO-92

Figure 11: TO-92 Package Mechanical Data



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		1.35			0.053	
B			4.70			0.185
C		2.54			0.100	
D	4.40			0.173		
E	12.70			0.500		
F			3.70			0.146
a			0.50			0.019

Table 8: Ordering Information

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
Z00607MA 1BA2	Z0607MA	TO-92	0.2 g	2500	Bulk
Z00607MA 2BL2	Z0607MA			2000	Ammopack
Z00607MA 5BL2	Z0607MA			2000	Tape & reel

Table 9: Revision History

Date	Revision	Description of Changes
Oct-2001	4	Last update.
25-Mar-2005	5	Package: TO-92 tape & reel delivery mode 5BL2 added.
21-Jun-2005	6	Markings updated from Z006xxxx to Z06xxxx
13-Sep-2005	7	Z00607MA 2BL2: marking corrected from 00607mA to Z0607MA

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