

P/N:YZPST-Z0103MN0

Standard 1A Triacs

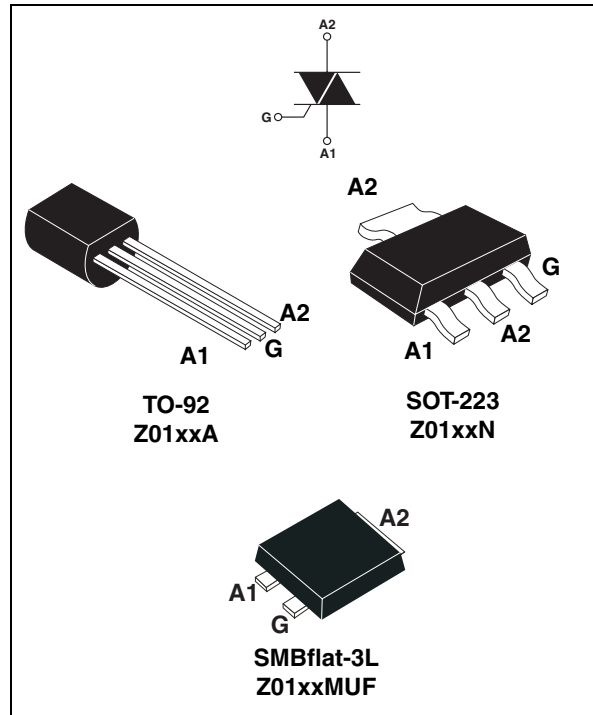
Features

- On-state rms current, $I_{T(RMS)}$ 1 A
- Repetitive peak off-state voltage, V_{DRM}/V_{RRM} 800 V
- Triggering gate current, $I_{GT}(Q1)$ 3 to 25 mA

Description

The Z01 series is suitable for general purpose AC switching applications. These devices are typically used in applications such as home appliances (electrovalve, pump, door lock, small lamp control), fan speed controllers,...

Different gate current sensitivities are available, allowing optimized performance when driven directly through microcontrollers.



1 Characteristics

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Table 1. Absolute maximum ratings

Symbol	Parameter	Value	Unit	
$I_{T(RMS)}$	On-state rms current (full sine wave)	SOT-223 $T_{tab} = 90\text{ }^{\circ}\text{C}$	1	A
		TO-92 $T_L = 50\text{ }^{\circ}\text{C}$		
		SMBflat-3L $T_{tab} = 107\text{ }^{\circ}\text{C}$		
I_{TSM}	Non repetitive surge peak on-state current (full cycle, T_j initial = $25\text{ }^{\circ}\text{C}$)	F = 50 Hz $t = 20\text{ ms}$	8	A
		F = 60 Hz $t = 16.7\text{ ms}$	8.5	
I^2t	I^2t Value for fusing	$t_p = 10\text{ ms}$	0.35	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, $t_r \leq 100\text{ ns}$	F = 120 Hz $T_j = 125\text{ }^{\circ}\text{C}$	20	$\text{A}/\mu\text{s}$
I_{GM}	Peak gate current	$t_p = 20\text{ }\mu\text{s}$ $T_j = 125\text{ }^{\circ}\text{C}$	1	A
$P_{G(AV)}$	Average gate power dissipation	$T_j = 125\text{ }^{\circ}\text{C}$	1	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range		- 40 to + 150 - 40 to + 125	$^{\circ}\text{C}$

Table 2. Electrical characteristics ($T_j = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Symbol	Test conditions	Quadrant		Z01				Unit
				03	07	09	10	
$I_{GT}^{(1)}$	$V_D = 12\text{ V}$, $R_L = 30\text{ }\Omega$	I - II - III	MAX.	3	5	10	25	mA
		IV		5	7	10	25	
V_{GT}		ALL	MAX.	1.3				V
V_{GD}	$V_D = V_{DRM}$, $R_L = 3.3\text{ k}\Omega$, $T_j = 125\text{ }^{\circ}\text{C}$	ALL	MIN.	0.2				V
$I_H^{(2)}$	$I_T = 50\text{ mA}$		MAX.	7	10	10	25	mA
I_L	$I_G = 1.2 I_{GT}$	I - III - IV	MAX.	7	10	15	25	mA
		II		15	20	25	50	
$dV/dt^{(2)}$	$V_D = 67\% V_{DRM}$ gate open $T_j = 110\text{ }^{\circ}\text{C}$		MIN.	10	20	50	100	$\text{V}/\mu\text{s}$
$(dV/dt)_c^{(2)}$	$(di/dt)_c = 0.44\text{ A/ms}$, $T_j = 110\text{ }^{\circ}\text{C}$		MIN.	0.5	1	2	5	$\text{V}/\mu\text{s}$

- Minimum I_{GT} is guaranteed at 5% of I_{GT} max.
- For both polarities of A2 referenced to A1.

Table 3. Static characteristics

Symbol	Test conditions			Value	Unit
$V_{TM}^{(1)}$	$I_{TM} = 1.4 \text{ A}$, $t_p = 380 \mu\text{s}$	$T_j = 25 \text{ }^\circ\text{C}$	MAX.	1.6	V
$V_{to}^{(1)}$	Threshold voltage	$T_j = 125 \text{ }^\circ\text{C}$	MAX.	0.95	V
$R_d^{(1)}$	Dynamic resistance	$T_j = 125 \text{ }^\circ\text{C}$	MAX.	400	m Ω
I_{DRM} I_{RRM}	$V_{DRM} = V_{RRM}$	$T_j = 25 \text{ }^\circ\text{C}$	MAX.	5	μA
		$T_j = 125 \text{ }^\circ\text{C}$		0.5	mA

1. For both polarities of A2 referenced to A1.

Table 4. Thermal resistances

Symbol	Parameter			Value	Unit	
$R_{th(j-t)}$	Junction to tab (AC)	SOT-223	MAX.	25	$^\circ\text{C/W}$	
$R_{th(j-t)}$	Junction to tab (AC)	SMBflat-3L		14		
$R_{th(j-l)}$	Junction to lead (AC)	TO-92		60		
$R_{th(j-a)}$	Junction to ambient	$S^{(1)} = 5 \text{ cm}^2$		SOT-223		60
				SMBflat-3L		75
				TO-92		150

1. S = copper surface under tab.