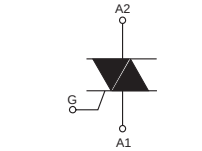
Z04 Series

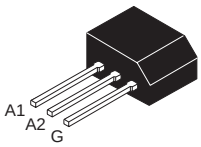
STANDARD

4A TRIACs

MAIN FEATURES:

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
V_{DRM}/V_{RRM}	600 to 800	V
$I_{GT\ (Q_1)}$	3 to 25	mA





TO202-3
(Z04xxF)

DESCRIPTION

The Z04 series is suitable for general purpose AC switching applications. They can be found in applications such as touch light dimmers, fan controllers, HID lamp ignitors,...
Different gate current sensitivities are available, allowing optimized performances when controlled directly from microcontrollers.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (full sine wave)		Tl = 30°C	4	A
			Tamb = 25°C	1	
I_{TSM}	Non repetitive surge peak on-state current (full cycle, Tj initial = 25°C)	F = 50 Hz	t = 20 ms	20	A
		F = 60 Hz	t = 16.7 ms	21	
I^2t	I^2t Value for fusing	tp = 10 ms		2.2	A^2s
dI/dt	Critical rate of rise of on-state current $I_G = 2 \times I_{GT}$, tr ≤ 100 ns	F = 120 Hz	Tj = 125°C	20	A/µs
I_{GM}	Peak gate current	tp = 20 µs	Tj = 125°C	1.2	A
$P_{G(AV)}$	Average gate power dissipation		Tj = 125°C	0.2	W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	°C

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

Symbol	Test Conditions	Quadrant		Z04xx				Unit
				02	05	09	10	
I_{GT} (1)	V_D = 12 V R_L = 30 Ω	ALL	MAX.	3	5	10	25	mA
V_{GT}		ALL	MAX.	1.3				V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3 kΩ Tj = 125°C	ALL	MIN.	0.2				V
I_H (2)	I_T = 50 mA		MAX.	3	5	10	25	mA
I_L	$I_G = 1.2\ I_{GT}$	I - III - IV	MAX.	6	10	15	25	mA
		II		12	15	25	50	
dV/dt (2)	V_D = 67 %V_{DRM} gate open Tj = 110°C		MIN.	10	20	100	200	V/µs
(dV/dt)c (2)	(dI/dt)c = 1.8 A/ms Tj = 110°C		MIN.	0.5	1	2	5	V/µs

STATIC CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
V_{TM} (2)	I_{TM} = 5.5 A tp = 380 µs	Tj = 25°C	MAX.	2.0	V
V_{to} (2)	Threshold voltage	Tj = 125°C	MAX.	0.95	V
R_d (2)	Dynamic resistance	Tj = 125°C	MAX.	180	mΩ
I_{DRM}	$V_{DRM} = V_{RRM}$	Tj = 25°C	MAX.	5	µA
I_{RRM}		Tj = 125°C		0.5	mA

Note 1: minimum IGT is guaranted at 5% of IGT max.

Note 2: for both polarities of A2 referenced to A1

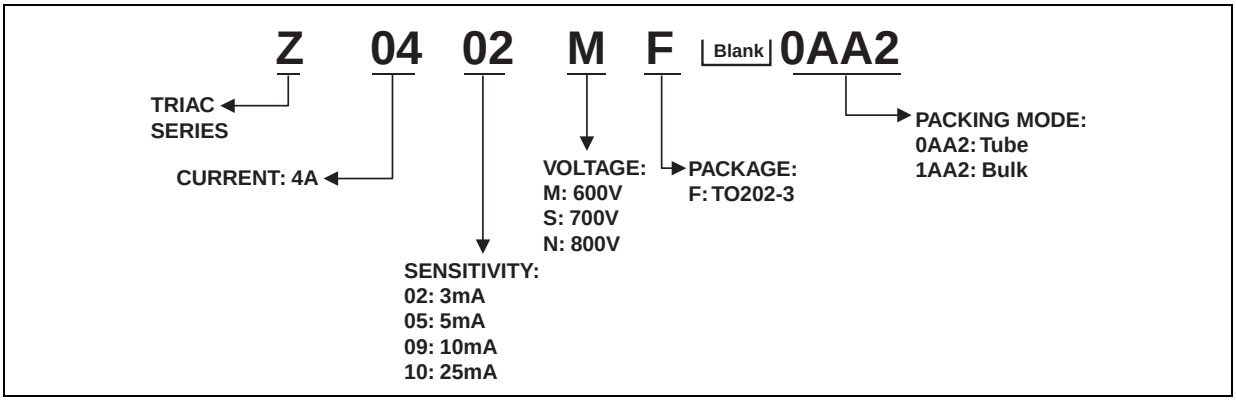
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to lead (AC)	15	°C/W
$R_{th(j-a)}$	Junction to ambient	100	°C/W

PRODUCT SELECTOR

Part Number	Voltage			Sensitivity	Type	Package
	600 V	700 V	800 V			
Z0402MF	X			3 mA	Standard	TO202-3
Z0402SF		X		3 mA	Standard	TO202-3
Z0402NF			X	3 mA	Standard	TO202-3
Z0405MF	X			5 mA	Standard	TO202-3
Z0405SF		X		5 mA	Standard	TO202-3
Z0405NF			X	5 mA	Standard	TO202-3
Z0409MF	X			10 mA	Standard	TO202-3
Z0409SF		X		10 mA	Standard	TO202-3
Z0409NF			X	10 mA	Standard	TO202-3
Z0410MF	X			25 mA	Standard	TO202-3
Z0410SF		X		25 mA	Standard	TO202-3
Z0410NF			X	25 mA	Standard	TO202-3

ORDERING INFORMATION



OTHER INFORMATION

Part Number	Marking	Weight	Base quantity	Packing mode
Z04xxyF 0AA2	Z04xxyF	0.8 g	50	Tube
Z04xxyF 1AA2	Z04xxyF	0.8 g	250	Bulk

Note: xx = sensitivity, y = voltage

Fig. 1: Maximum power dissipation versus RMS on-state current (full cycle).

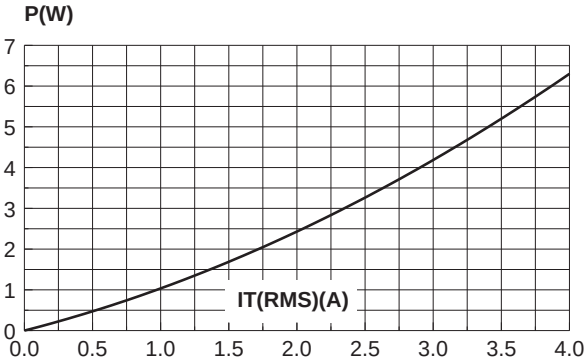


Fig. 2: RMS on-state current versus ambient temperature (full cycle).

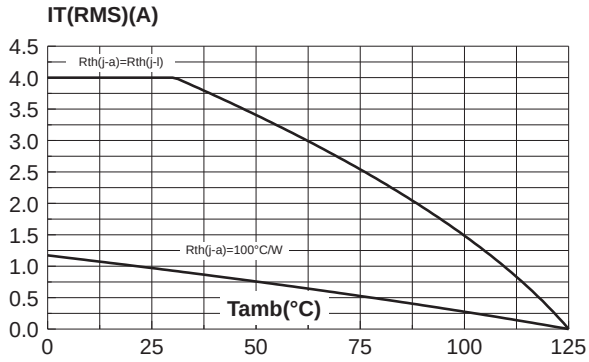


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

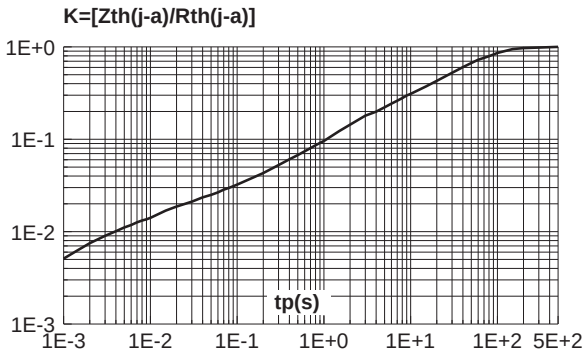


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

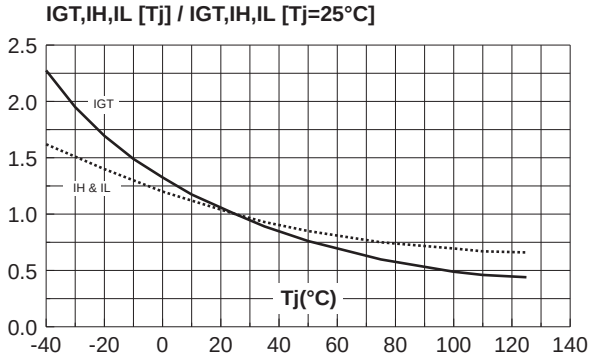


Fig. 5: Surge peak on-state current versus number of cycles.

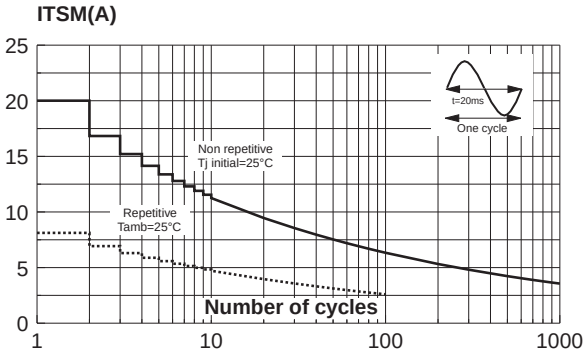


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms, and corresponding value of I^2t.

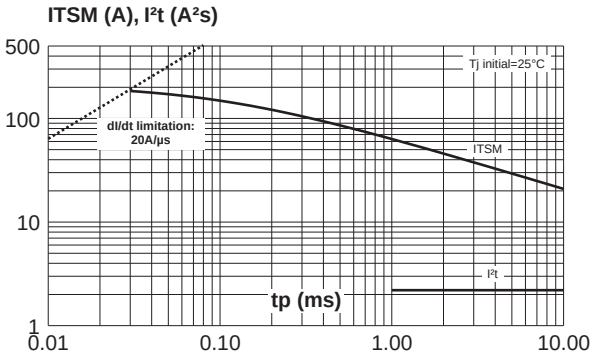


Fig. 7: On-state characteristics (maximum values).

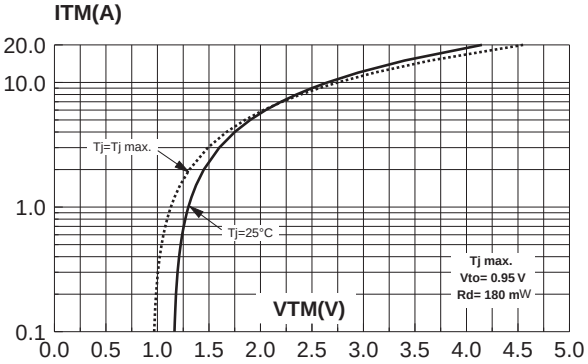


Fig. 8: Relative variation of critical rate of decrease of main current versus (dV/dt)c (typical values).

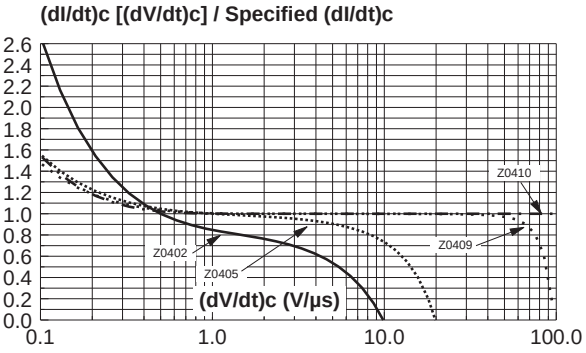
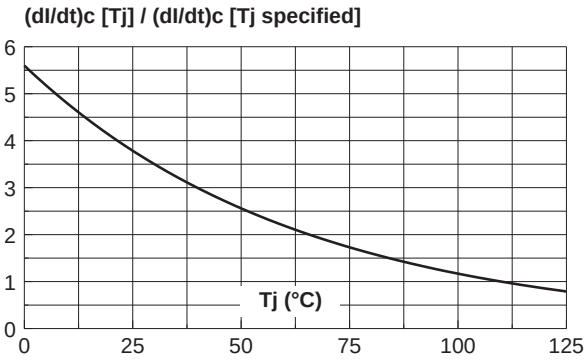
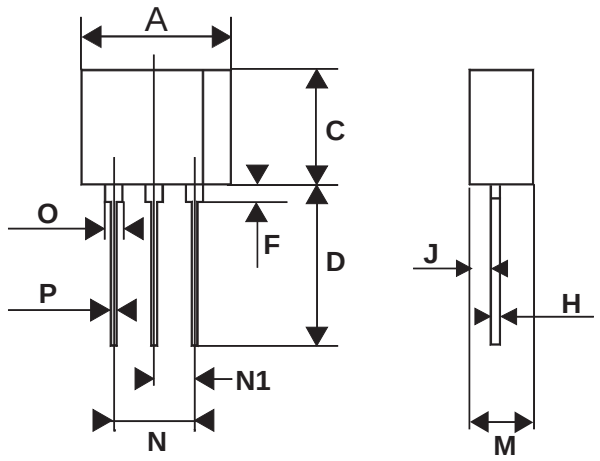


Fig. 9: Relative variation of critical rate of decrease of main current versus junction temperature.



PACKAGE MECHANICAL DATA

TO202-3 (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			10.1			0.398
C		7.3			0.287	
D		10.5			0.413	
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