



## UZ0103

Preliminary

**TRIACS**

### 1A TRIACS

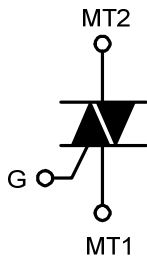
#### DESCRIPTION

The UTC **UZ0103** is a 1A triacs, it is suitable for general purpose AC switching applications, fan speed controllers and home appliances.

#### FEATURES

- \*  $I_{GT} \leq 3mA$  (I-II-III),  $I_{GT} \leq 5mA$  (IV)
- $I_{TSM} \leq 8A$  ( $t=20ms$ ),  $I_{TSM} \leq 8.5A$  ( $t=16.7ms$ )
- $I_{T(RMS)} \leq 1A$

#### SYMBOL



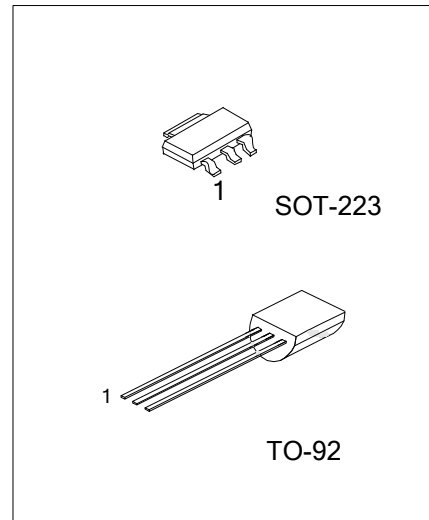
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UZ0103XL-T92-B	UZ0103XG-T92-B	TO-92	MT1	GATE	MT2	Tape Box
UZ0103XL-T92-K	UZ0103XG-T92-K	TO-92	MT1	GATE	MT2	Bulk
UZ0103XL-T92-R	UZ0103XG-T92-R	TO-92	MT1	GATE	MT2	Tape Reel
UZ0103XL-AA3-R	UZ0103XG-AA3-R	SOT-223	MT1	MT2	GATE	Tape Reel

<p>UZ0103XL-T92-B</p> <p>(1)Packing Type (2)Package Type (3)Lead Free (4)Voltage Code</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel (2) T92: TO-92, AA3: SOT-223 (3) L: Lead Free, G: Halogen Free (4) M: 600V, N: 800V</p>
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#### SENSITIVITY AND TYPE

VOLTAGE CODE	VOLTAGE		SENSITIVITY	TYPE
	600V	800V		
M	⊙		3mA	STANDARD
N		⊙	3mA	STANDARD



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage	UZ0103M	600	V
	UZ0103N	800	V
Repetitive Peak Reverse Voltage	UZ0103M	600	V
	UZ0103N	800	V
RMS On-State Current (full sine wave)	$T_L=50^\circ\text{C}$	1	A
Non Repetitive Surge Peak On-State Current (full cycle, $T_J$ initial= $25^\circ\text{C}$ )	F=50Hz, t=20ms	8	A
	F=60Hz, t=16.7ms	8.5	A
$I^2t$ Value for Fusing	$t_p=10\text{ms}$	0.35	$\text{A}^2\text{s}$
Critical Rate of Rise of On-State Current: $I_G=2 \cdot I_{GT}$ , $t_r \leq 100\text{ns}$	F=120Hz, $T_J=125^\circ\text{C}$	20	$\text{A}/\mu\text{s}$
Peak Gate Current	$t_p=20\mu\text{s}$ , $T_J=125^\circ\text{C}$	1	A
Average Gate Power Dissipation	$T_J=125^\circ\text{C}$	1	W
Operating Junction Temperature	$T_J$	-40~+125	$^\circ\text{C}$
Storage Junction Temperature	$T_{STG}$	-40~+150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ THERMAL RESISTANCES

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-92	150	$^\circ\text{C}/\text{W}$
	SOT-223	60	$^\circ\text{C}/\text{W}$
Junction to Case	TO-92	60	$^\circ\text{C}/\text{W}$
	SOT-223	25	$^\circ\text{C}/\text{W}$

Note: S=Copper surface under tab.

### ■ ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	QUADRANT	MIN	TYP	MAX	UNIT
Repetitive Peak Off-State or Reverse Current	$I_{DRM}$ , $I_{RRM}$	$V_{DRM}=V_{RRM}$	$T_J=25^\circ\text{C}$			5	$\mu\text{A}$
			$T_J=125^\circ\text{C}$			0.5	$\text{mA}$
Gate Trigger Current (Note 1)	$I_{GT}$	$V_D=12\text{V}$ , $R_L=30\Omega$	I-II-III			3	$\text{mA}$
			IV			5	$\text{mA}$
Gate Trigger Voltage	$V_{GT}$		ALL			1.3	V
Gate Non-Trigger Voltage	$V_{GD}$	$V_D=V_{DRM}$ , $R_L=3.3\text{k}\Omega$ , $T_J=125^\circ\text{C}$	ALL	0.2			V
Holding Current (Note 2)	$I_H$	$I_T=50\text{mA}$				7	$\text{mA}$
Latching Current	$I_L$	$I_G=1.2I_{GT}$	I-III-IV			7	$\text{mA}$
			II			15	$\text{mA}$
Rise of Off-State Voltage (Note 2)	$dV_D/dt$	$V_D=67\%V_{DRM}$ , Gate Open, $T_J=110^\circ\text{C}$		10			$\text{V}/\mu\text{s}$
Rise of Off-State Voltage at Commutation (Note 2)	$(dV_{COM}/dt)_C$	$(dI/dt)_C=0.44\text{A}/\text{ms}$ , $T_J=110^\circ\text{C}$		0.5			$\text{V}/\mu\text{s}$
On-State Voltage (Note 2)	$V_{TM}$	$I_{TM}=1.4\text{A}$ , $t_p=380\mu\text{s}$ , $T_J=25^\circ\text{C}$				1.56	V
Dynamic Resistance (Note 2)	$R_D$	Dynamic resistance, $T_J=125^\circ\text{C}$				400	$\text{m}\Omega$

Notes: 1. Minimum  $I_{GT}$  is guaranteed at 5% of  $I_{GT}$  max.  
2. For both polarities of A2 referenced to A1.

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