



## UZ0103

TRIAC

### 1A TRIAC

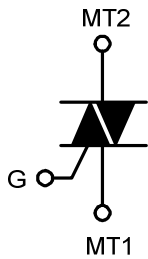
#### DESCRIPTION

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

#### FEATURES

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

#### SYMBOL



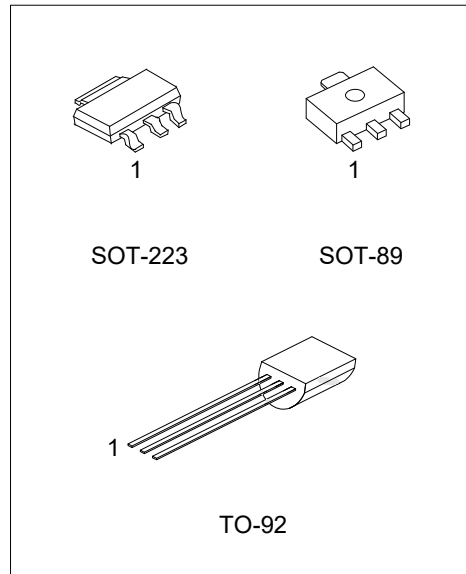
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UZ0103L-x-AA3-R	UZ0103G-x-AA3-R	SOT-223	MT1	MT2	GATE	Tape Reel
UZ0103L-x-AB3-R	UZ0103G-x-AB3-R	SOT-89	MT1	MT2	GATE	Tape Reel
UZ0103L-x-T92-B	UZ0103G-x-T92-B	TO-92	MT1	GATE	MT2	Tape Box
UZ0103L-x-T92-K	UZ0103G-x-T92-K	TO-92	MT1	GATE	MT2	Bulk

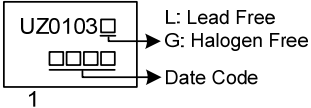
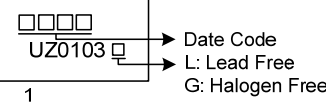
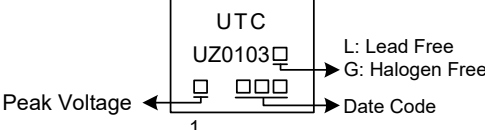
<p>UZ0103G-x-AA3-R</p> <ul style="list-style-type: none"> <li>(1)Packing Type</li> <li>(2)Package Type</li> <li>(3)Peak Voltage</li> <li>(4)Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel, B: Tape Box, K: Bulk</li> <li>(2) AA3: SOT-223, AB3: SOT-89, T92: TO-92</li> <li>(3) 6: 600V, 8: 800V</li> <li>(4) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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#### SENSITIVITY AND TYPE

VOLTAGE CODE	VOLTAGE		SENSITIVITY	TYPE
	600V	800V		
6	⊙		3mA	STANDARD
8		⊙	3mA	STANDARD



## MARKING

PACKAGE	MARKING
SOT-223	 <p>UZ0103□ → L: Lead Free          □□□□ → G: Halogen Free          1 → Date Code</p>
SOT-89	 <p>□□□□ → Date Code          UZ0103□ → L: Lead Free          1 → G: Halogen Free</p>
TO-92	 <p>UTC          UZ0103□ → L: Lead Free          □□□□ → G: Halogen Free          1 → Date Code          Peak Voltage ←</p>

## ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage	UZ0103-6	$V_{DRM}$	600	V
	UZ0103-8		800	V
Repetitive Peak Reverse Voltage	UZ0103-6	$V_{RRM}$	600	V
	UZ0103-8		800	V
RMS On-State Current (full sine wave)	$T_L=50^{\circ}\text{C}$	$I_{T(RMS)}$	1	A
Non Repetitive Surge Peak On-State Current (full cycle, $T_J$ initial= $25^{\circ}\text{C}$ )	F=50Hz, t=20ms	$I_{TSM}$	8	A
	F=60Hz, t=16.7ms		8.5	A
$I^2t$ Value for Fusing	$t_p=10\text{ms}$	$I^2t$	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, $T_J=125^{\circ}\text{C}$	di/dt	20	$\text{A}/\mu\text{s}$
Peak Gate Current	$t_p=20\mu\text{s}$ , $T_J=125^{\circ}\text{C}$	$I_{GM}$	1	A
Average Gate Power Dissipation	$T_J=125^{\circ}\text{C}$	$P_{G(AV)}$	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	SOT-223	$\theta_{JA}$	60	$^{\circ}\text{C}/\text{W}$
	SOT-89		200	$^{\circ}\text{C}/\text{W}$
	TO-92		150	$^{\circ}\text{C}/\text{W}$
Junction to Case	SOT-223	$\theta_{JC}$	25	$^{\circ}\text{C}/\text{W}$
	SOT-89		35.7	$^{\circ}\text{C}/\text{W}$
	TO-92		60	$^{\circ}\text{C}/\text{W}$

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	mA
Gate Trigger Current (Note 1)	$I_{GT}$	$V_D=12\text{V}$ , $R_L=30\Omega$	I-II-III			3	mA
			IV			5	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	mA
Latching Current	$I_L$	$I_G=1.2I_{GT}$	I-III-IV			7	mA
			II			15	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 MT2 referenced to MT1.

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