

# UNISONIC TECHNOLOGIES CO., LTD

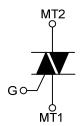
**UT136E TRIAC** 

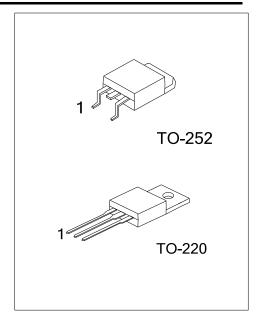
# **TRIAC**

#### **DESCRIPTION**

Passivated, sensitive gate triacs in a plastic envelope, suitable for surface mounting, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

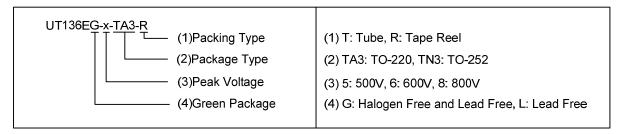
#### **SYMBOL**



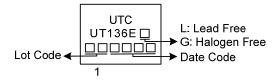


#### **ORDERING INFORMATION**

Ordering Number		Dookogo	Pin Assignment			Dooking	
Lead Free	Halogen Free	Package	1	2	3	Packing	
UT136EL-x-TA3-T	UT136EG-x-TA3-T	TO-220	MT1	MT2	G	Tube	
UT136EL-x-TN3-R	UT136EG-x-TN3-R	TO-252	MT1	MT2	G	Tape Reel	



#### **MARKING**



#### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER			SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltages		UT136E-5		500 (Note 2)	V
		UT136E-6 UT136E-8	$V_{DRM}$	600 (Note 2)	V
				800	V
RMS On-State Current	(full sine wave, T	<sub>MB</sub> ≤107°C)	I <sub>T(RMS)</sub>	4	Α
Non-Repetitive Peak On-State Current   t =20ms			I <sub>TSM</sub>	25	Α
(Full sine wave; T <sub>J</sub> =25°C prior to surge) t =16.7ms		27		Α	
I <sup>2</sup> t for fusing (t =10ms)		l <sup>2</sup> t	3.1	$A^2s$	
Devetitive Detect Disc	I <sub>TM</sub> =6A, I <sub>G</sub> =0.2A, dI <sub>G</sub> /dt=0.2A/μs	T2+ G+	dl <sub>T</sub> /dt	50	A/µs
		T2+ G-		50	A/µs
		T2- G-		50	A/µs
		T2- G+		10	A/µs
Peak Gate Voltage		$V_{GM}$	5	V	
Peak Gate Current			$I_{GM}$	2	Α
Peak Gate Power			$P_GM$	5	W
Average Gate Power (over any 20 ms period)		$P_{G(AV)}$	0.5	W	
Junction Temperature			$T_J$	125	°C
Storage Temperature			$T_{STG}$	-40 ~ +150	°C

Note: 1. 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 DATA**

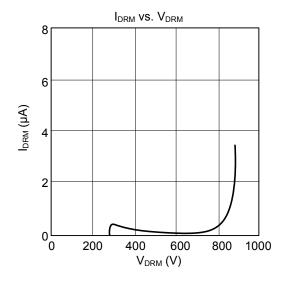
PARAMETER		SYMBOL	RATINGS	UNIT		
Junction to Ambient	Pcb Mounted	TO-220	$\theta_{JA}$	60	K/W	
		TO-252		75	r\/ vv	
Junction to Mounting Base		Full Cycle	0	3.0	17/\\	
		Half Cycle	$\theta_{JB}$	3.7	K/W	

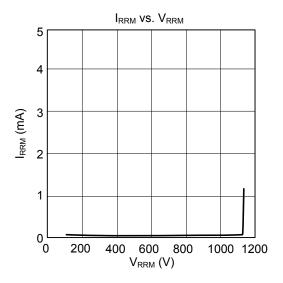
## ■ **ELECTRICAL CHARACTERISTICS** (T<sub>J</sub>=25°C, unless otherwise specified)

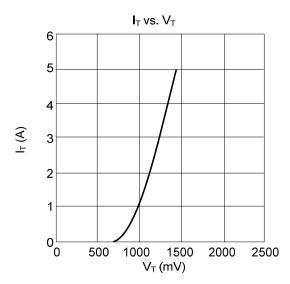
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT		
STATIC									
Gate Trigger Current	I <sub>GT</sub>	V <sub>D</sub> =12V, I <sub>T</sub> =0.1A	T2+ G+		2.5	10	mΑ		
			T2+ G-		4.0	10	mΑ		
			T2- G-		5.0	10	mΑ		
			T2- G+		11	25	mΑ		
Latching Current	IL	V <sub>D</sub> =12V, I <sub>GT</sub> =0.1A	T2+ G+		3.0	15	mΑ		
			T2+ G-		10	20	mΑ		
			T2- G-		2.5	15	mΑ		
			T2- G+		4.0	20	mΑ		
Holding Current	I <sub>H</sub>	V <sub>D</sub> =12V, I <sub>GT</sub> =0.1A			2.2	15	mA		
On-State Voltage	$V_{T}$	I <sub>T</sub> =5A			1.4	1.7	V		
Gate Trigger Voltage	$V_{GT}$	$V_D = 12V, I_T = 0.1A$			0.7	1.5	V		
		V <sub>D</sub> =400V, I <sub>T</sub> =0.1A, T <sub>J</sub> =125°C		0.25	0.4		V		
Off-State Leakage Current	I <sub>D</sub>	$V_D = V_{DRM(MAX)}$ , $T_J = 125$ °C			0.1	0.5	mA		
DYNAMIC									
Critical Rate of Rise of Off-State	d\/ /dt	$V_{DM}$ =67% $V_{DRM(max)}$ , $T_J$ =125°C,			50		\//uo		
Voltage	dV <sub>D</sub> /dt exponential waveform; gate open circuit				50		V/µs		
Gate Controlled Turn-On Time	t <sub>GT</sub>	$I_{TM}$ =6A, $V_D$ = $V_{DRM(MAX)}$ , $I_G$ =0.1A, $dI_G$ / $dt$ =5A/ $\mu$ s			2		μs		

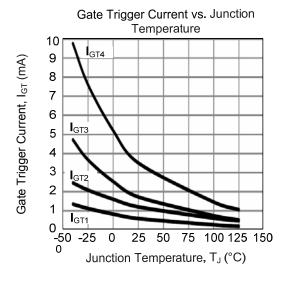
<sup>2.</sup> Although not recommended, off-state voltages up to 800V may be applied without damage, but the traic may switch to the on-state. The rate of rise of current should not exceed 3A/µs.

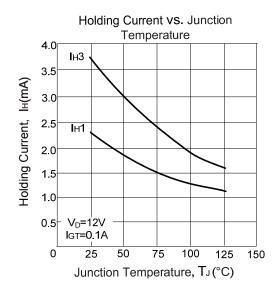
#### **■ TYPICAL CHARACTERISTICS**

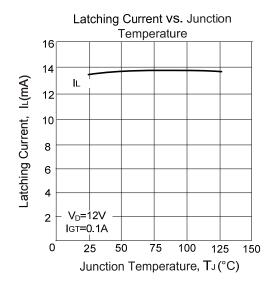






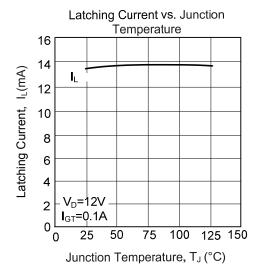


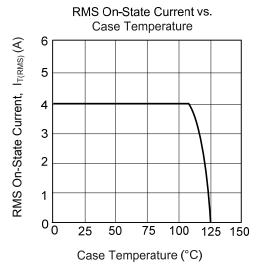


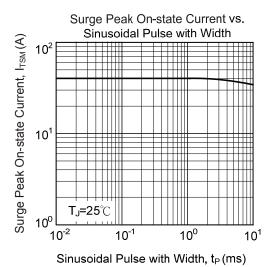


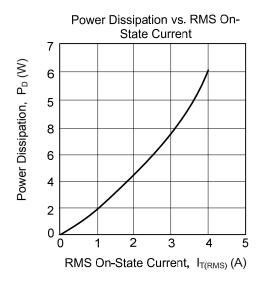
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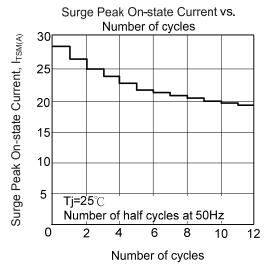
### **■ TYPICAL CHARACTERISTICS (Cont.)**











UT136E TRIAC

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