UT139

TRIAC

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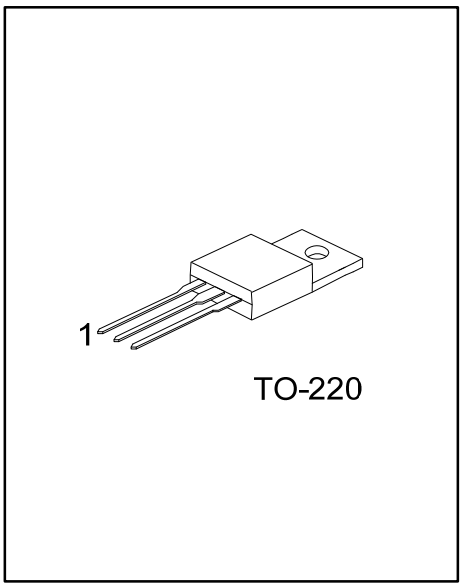


■ DESCRIPTION

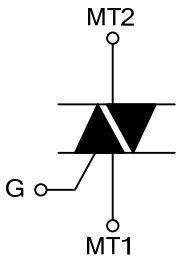
The UTC **UT139** is a triacs, it uses UTC's advanced technology to provide customers with high bidirectional transient and high thermal cycling performance.

The UTC **UT139** is suitable for motor control, heating and static switching, etc.

■ FEATURES

* High bidirectional transient
* High thermal cycling performance
* Blocking voltage capability

■ SYMBOL



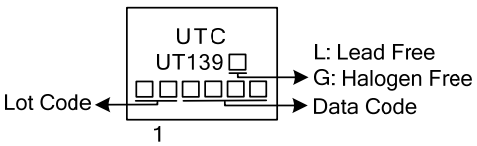
■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
UT139L-x-TA3-T	UT139G-x-TA3-T	TO-220	MT1	MT2	G	Tube

Note: Pin Assignment: G: Gate

UT139L- x -TA3-T (1)Packing Type (2)Package Type (3)Peak Voltage (4)Green Package	(1) T: Tube (2) TA3: TO-220 (3) 6: 600V, 8: 800V (4) L: Lead Free, G: Halogen Free and Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive peak off-state voltages	UT139-6	V_{DRM}	600 (Note 2)	V
	UT139-8		800	V
RMS on-state current full sine wave; T_{mb} ≤99°C		$I_{T(RMS)}$	16	A
Non-repetitive peak on-state current (Full sine wave; T_J = 25°C prior to surge)	t = 20ms	I_{TSM}	140	A
	t = 16.7 ms		150	
I^2t for fusing	t = 10 ms	I^2t	21	A^2s
Repetitive rate of rise of on-state current after triggering I_{TM}=20A; I_G=0.2A; d_{IG} /dt=0.2A/μs	T2+ G+	dI_T /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	A
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.
2. Although not recommended, off-state voltages up to 800V may be applied without damage, but the triac may switch to the on-state. The rate of rise of current should not exceed 6A/μs.

■ THERMAL RESISTANCES

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Thermal resistance Junction to Ambient	In Free Air	θ_{JA}		60		°C/W
Thermal resistance Junction to mounting base	Full cycle	θ_{JC}			1.2	°C/W
	Half cycle				1.7	°C/W

■ STATIC CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Gate Trigger Current	I_{GT}	V_D=12V, I_T=0.1A	T2+G+			35	mA
			T2+G-			35	
			T2-G-			35	
			T2-G+			70	
Latching Current	I_L	V_D=12V, I_{GT}=0.1A	T2+G+		7	40	mA
			T2+G-		20	60	
			T2-G-		8	40	
			T2-G+		10	60	
Holding Current	I_H	V_D=12V, I_{GT}=0.1A			6	30	mA
On-State Voltage	V_T	I_T=20A			1.2	1.6	V
Gate Trigger Voltage	V_{GT}	V_D=12V, I_T=0.1A			0.7	1.5	V
		V_D=400V, I_T=0.1A, T_J=125°C		0.25	0.40		V
Off-State Leakage Current	I_D	V_D=$V_{DRM(max)}$, T_J=125°C			0.1	0.5	mA

■ DYNAMIC CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Critical Rate Of Rise Of Off-State Voltage	dV_D/dt	V_{DM}=67% $V_{DRM(max)}$, T_J=125°C, Exponential waveform, gate open circuit	100	250		V/μs
Critical Rate Of Change Of Commutating Voltage	dV_{com}/dt	V_{DM}=400V, T_J=95°C, $I_{T(RMS)}$=16A, dI_{com}/dt=7.2A/ms, gate open circuit		20		V/μs
Gate Controlled Turn-On Time	t_{gt}	I_{TM}=20A, V_D=$V_{DRM(max)}$, I_G=0.1A, dI_G/dt=5A/μs		2		μs