



UT139F/G

TRIAC

TRIAC

■ DESCRIPTION

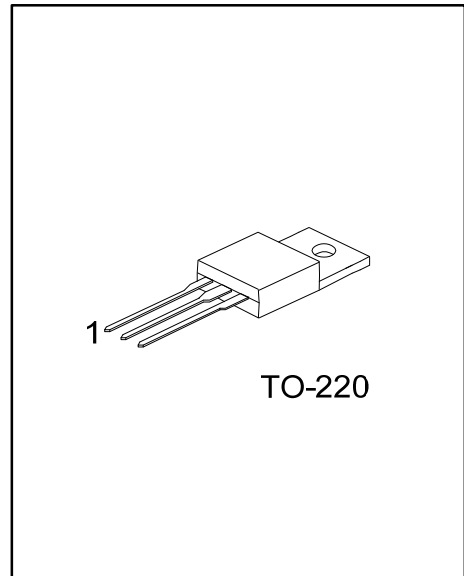
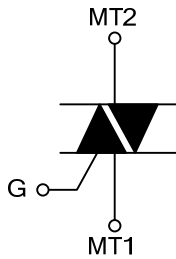
The UTC **UT139F/G** is a triacs, it uses UTC's advanced technology to provide customers with high bidirectional transient and high thermal cycling performance.

The UTC **UT139F/G** 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	
UT139FL-x-TA3-T	UT139FG-x-TA3-T	TO-220	MT1	MT2	G	Tube
UT139GL-x-TA3-T	UT139GP-x-TA3-T	TO-220	MT1	MT2	G	Tube

Note: Pin Assignment: G: Gate

<p>UT139FL-x-TA3-T</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Peak Voltage (4) Green Package 	<ul style="list-style-type: none"> (1) T: Tube (2) TA3: TO-220 (3) 6: 600V, 8: 800V (4) L: Lead Free, G: Halogen Free and Lead Free P: Halogen Free and Lead Free
--	--

■ MARKING

UT139F	UT139G

■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive peak off-state voltages	UT139F/G-6	600 (Note 2)	V
	UT139F/G-8	800	V
RMS on-state current full sine wave; $T_{mb} \leq 99^{\circ}\text{C}$	$I_{T(RMS)}$	16	A
Non-repetitive peak on-state current (Full sine wave; $T_J = 25^{\circ}\text{C}$ prior to surge)	$t = 20\text{ms}$	140	A
	$t = 16.7\text{ms}$	150	
I^2t for fusing	$t = 10\text{ms}$	I^2t	A^2s
Repetitive rate of rise of on-state current after triggering $I_{TM}=20\text{A}; I_G=0.2\text{A}; dI_G/dt=0.2\text{A}/\mu\text{s}$	T2+ G+	di_T/dt	50
	T2+ G-		50
	T2- G-		50
	T2- G+		10
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	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-40 ~ +150	$^{\circ}\text{C}$

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		$^{\circ}\text{C}/\text{W}$
Thermal resistance Junction to mounting base	Full cycle			1.2	$^{\circ}\text{C}/\text{W}$
	Half cycle			1.7	$^{\circ}\text{C}/\text{W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX		UNIT
					UT139F	UT139G	
Gate Trigger Current	I_{GT}	$V_D=12\text{V}, I_T=0.1\text{A}$	T2+G+	5	25	50	mA
			T2+G-	8	25	50	
			T2-G-	11	25	50	
			T2-G+	30	70	100	
Latching Current	I_L	$V_D=12\text{V}, I_{GT}=0.1\text{A}$	T2+G+	7	40	60	mA
			T2+G-	20	60	90	
			T2-G-	8	40	60	
			T2-G+	10	60	90	
Holding Current	I_H	$V_D=12\text{V}, I_{GT}=0.1\text{A}$		6	30	60	mA
On-State Voltage	V_T	$I_T=20\text{A}$		1.2	1.6		V
Gate Trigger Voltage	V_{GT}	$V_D=12\text{V}, I_T=0.1\text{A}$		0.7	1.5		V
		$V_D=400\text{V}, I_T=0.1\text{A}, T_J=125^{\circ}\text{C}$		0.40			V
Off-State Leakage Current	I_D	$V_D=V_{DRM(max)}, T_J=125^{\circ}\text{C}$		0.1	0.5		mA

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN		TYP	MAX	UNIT
			UT139F	UT139G			
Critical Rate Of Rise Of Off-State Voltage	dV_D/dt	$V_{DM}=67\% V_{DRM(max)}$, $T_J=125^\circ\text{C}$, Exponential waveform, gate open circuit	50	200	250		V/ μs
Critical Rate Of Change Of Commutating Voltage	dV_{com}/dt	$V_{DM}=400\text{V}$, $T_J=95^\circ\text{C}$, $I_{T(RMS)}=16\text{A}$, $dI_{com}/dt=7.2\text{A/ms}$, gate open circuit		10	20		V/ μs
Gate Controlled Turn-On Time	t_{gt}	$I_{TM}=20\text{A}$, $V_D=V_{DRM(max)}$, $I_G=0.1\text{A}$, $dI_G/dt=5\text{A}/\mu\text{s}$			2		μs

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.