



UTC131

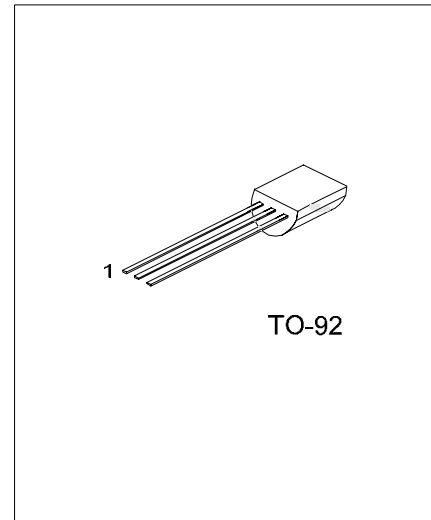
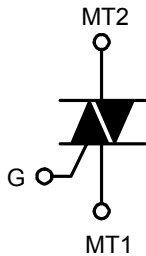
TRIAC

TRIACS LOGIC LEVEL

DESCRIPTION

Passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications. These devices are intended to be interfaced directly to microcontrollers, logic integrated circuits and other low power gate trigger circuits.

SYMBOL



*Pb-free plating product number: UT131L

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
UT131-5-T92-B	UT131L-5-T92-B	TO-92	MT1	GATE	MT2	Tape Box
UT131-5-T92-K	UT131L-5-T92-K	TO-92	MT1	GATE	MT2	Bulk
UT131-6-T92-B	UT131L-6-T92-B	TO-92	MT1	GATE	MT2	Tape Box
UT131-6-T92-K	UT131L-6-T92-K	TO-92	MT1	GATE	MT2	Bulk
UT131-8-T92-B	UT131L-8-T92-B	TO-92	MT1	GATE	MT2	Tape Box
UT131-8-T92-K	UT131L-8-T92-K	TO-92	MT1	GATE	MT2	Bulk

<p>UT131L-5-T92-B</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p>	<p>(1) B: Tape Box, K: Bulk</p> <p>(2) T92: TO-92</p> <p>(3) L: Lead Free Plating, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltage	UT131-5	V_{DRM}	500(Note 2)	V
	UT131-6		600(Note 2)	V
	UT131-8		800(Note 2)	V
RMS On-State Current, Full Sine Wave; $T_{lead} \leq 51$		$I_{T(RMS)}$	1	A
Non-Repetitive Peak On-State Current (Full Sine Wave; $T_J=25$ Prior to Surge)	$t=20ms$	I_{TSM}	16	A
	$t=16.7ms$		17.6	A
Circuit Fusing	$t=10ms$	I_t^2	1.28	A^2s
Repetitive Rate of Rise of On-State Current after Triggering $I_{TM}=1.5A, I_G=0.2A, dI_G/dt=0.2A/\mu s$	T2 + G +	dl_T/dt	50	$A/\mu s$
	T2 + G -		50	$A/\mu s$
	T2 - G -		50	$A/\mu s$
	T2 - G +		10	$A/\mu s$
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 20ms period)		$P_{G(AV)}$	0.5	W
Junction Temperature		T_J	+125	
Storage Temperature		T_{STG}	-40 ~ +150	

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 $3 A/\mu s$.

■ THERMAL RESISTANCES

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Thermal Resistance Junction to Lead	Full Cycle	θ_{JLEAD}			60	/W
	Half Cycle				80	/W
Thermal Resistance junction to Ambient (Note)		θ_{JA}		150		/W

Note: PCB mounted; lead length=4mm

■ ELECTRICAL CHARACTERISTICS ($T_J=25$, unless otherwise specified)

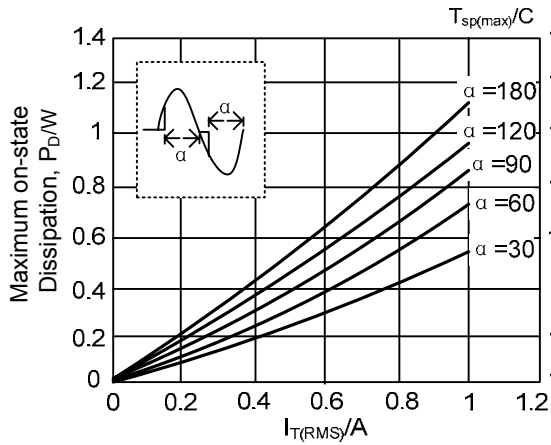
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Gate Trigger Current	I_{GT}	$V_D=12V, I_T=0.1A$	T2 + G +		0.4	3	mA
			T2 + G -		1.3	3	mA
			T2 - G -		1.4	5	mA
			T2 - G +		3.8	7	mA
Latching Current	I_L	$V_D=12V, I_{GT}=0.1A$	T2 + G +		1.2	5	mA
			T2 + G -		4.0	8	mA
			T2 - G -		1.0	5	mA
			T2 - G +		2.5	8	mA
Holding Current	I_H	$V_D=12V, I_{GT}=0.1A$		1.3	5	mA	
On -State Voltage	V_T	$I_T=2.0A$		1.2	1.5	V	
Gate Trigger Voltage	V_{GT}	$V_D=12V, I_T=0.1A$		0.7	1.5	V	
		$V_D=400V, I_T=0.1A, T_J=125$	0.2	0.3		V	
Off-State Leakage Current	I_D	$V_D=V_{DRM(MAX)}, T_J=125$		0.1	0.5	mA	

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

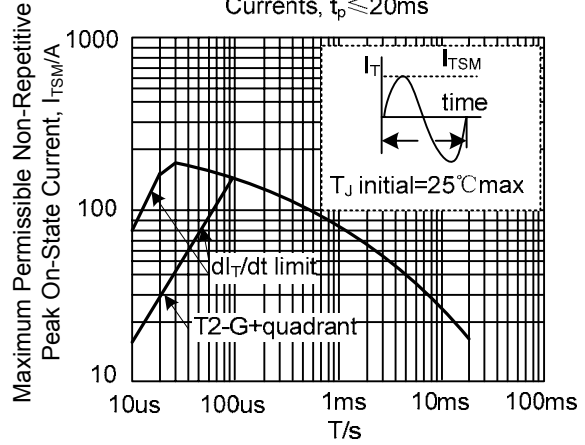
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Critical Rate of Rise of off-state Voltage	dV_D/dt	$V_{DM}=67\% V_{DRM(MAX)}, T_J=125$ Exponential waveform, $R_{GK}=1k\Omega$	5	15		$V/\mu s$
Gate Controlled Turn-on Time	t_{gt}	$I_{TM}=1.5A, V_D=V_{DRM(MAX)},$ $I_G=0.1A dI_G/dt=5A/\mu s$		2		μs

■ TYPICAL CHARACTERISTICS

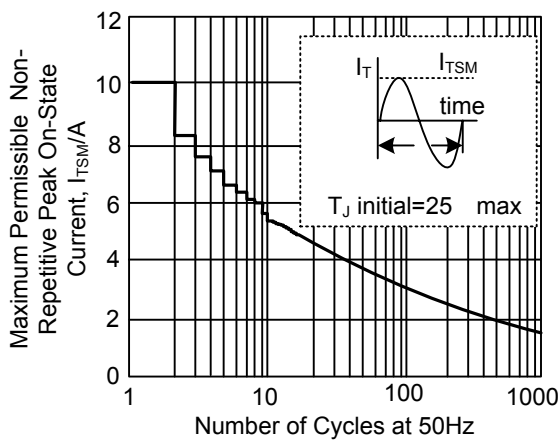
Maximum on-state Dissipation vs. RMS On-state Current, $I_{T(RMS)}$, Where α = conduction Angle



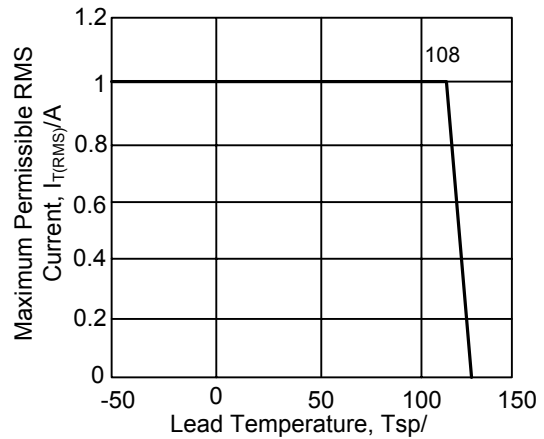
Maximum Permissible Non-repetitive Peak On-state Current vs. Pulse Width t_p , for Sinusoidal Currents, $t_p \leq 20ms$



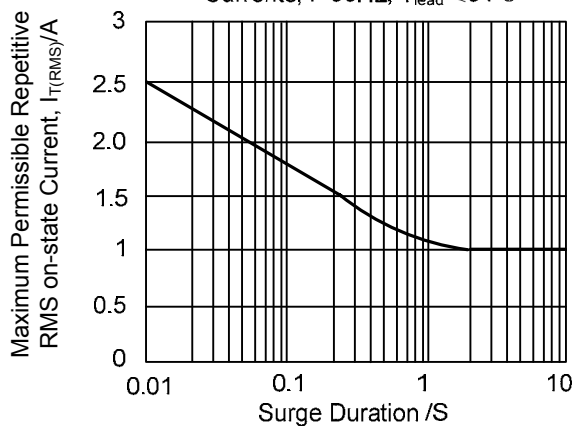
Maximum Permissible Non-Repetitive Peak On-State Current vs. Number of Cycles, for Sinusoidal Currents



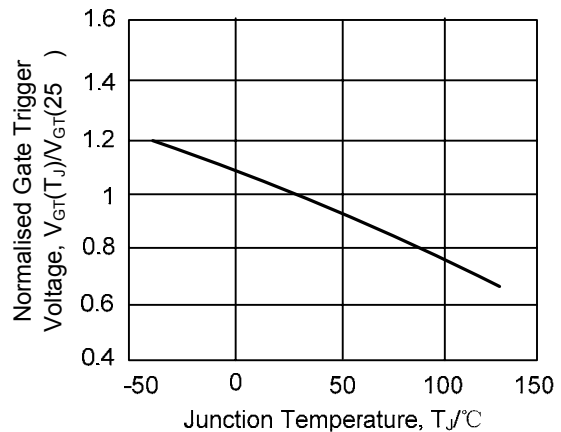
Maximum Permissible RMS Current $I_{T(RMS)}$ vs. Lead Temperature



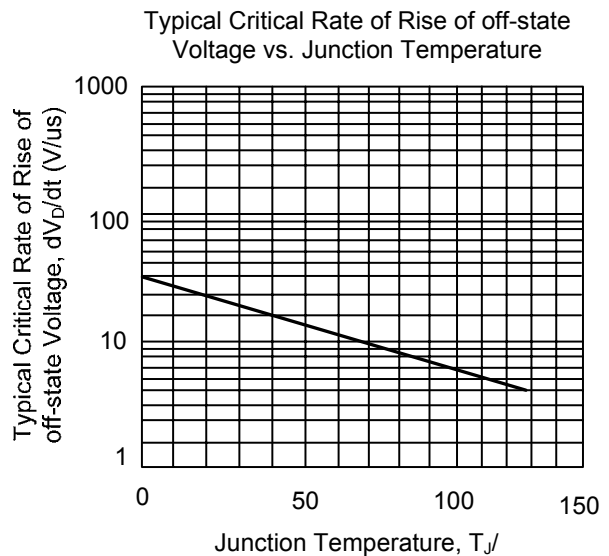
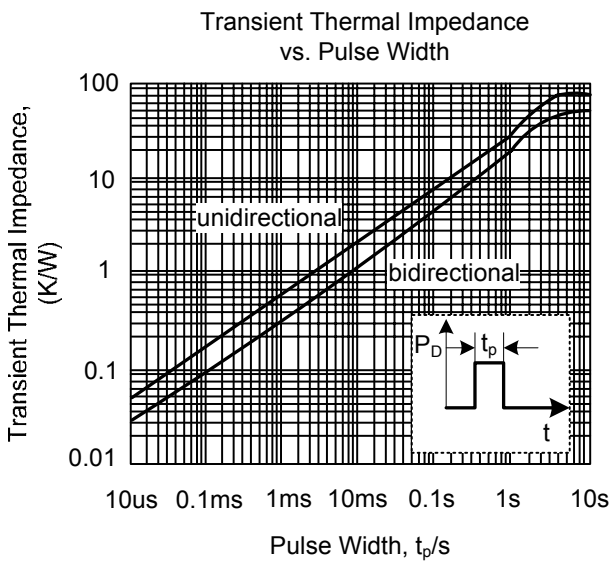
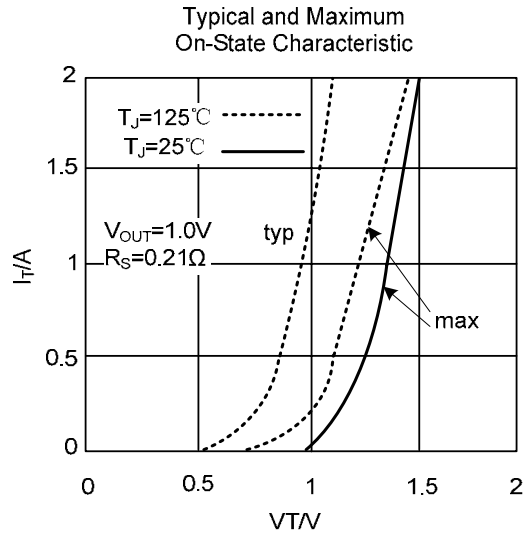
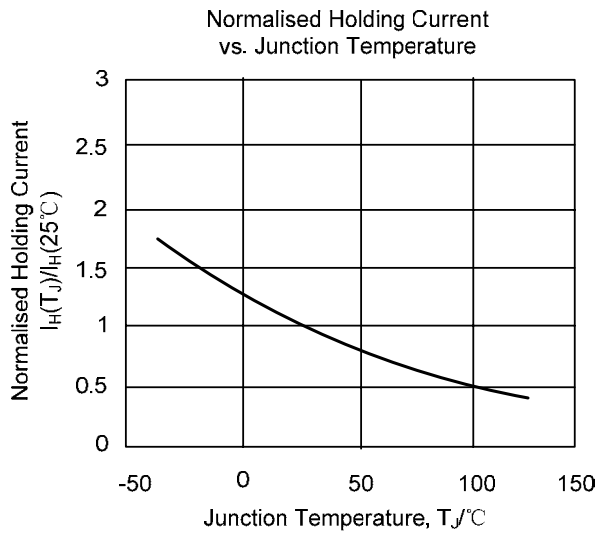
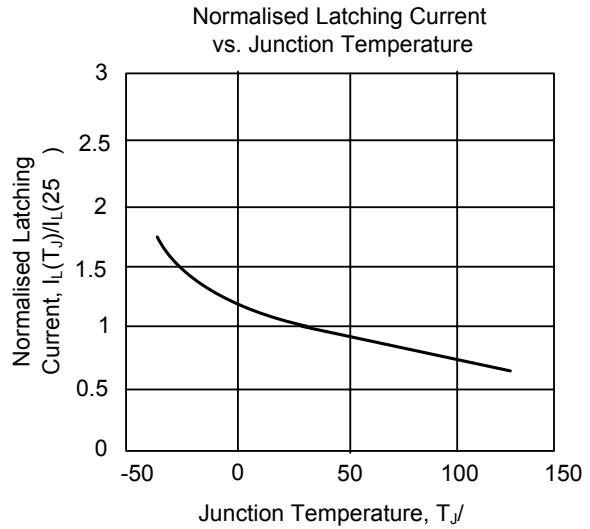
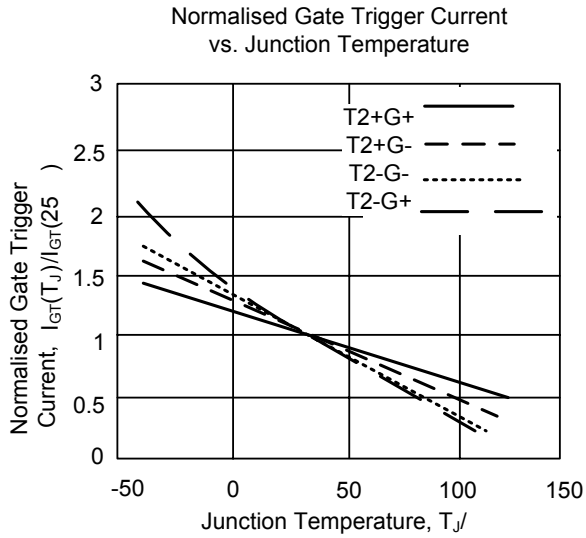
Maximum Permissible Repetitive RMS on-state Current vs. Surge Duration, for Sinusoidal Currents, $f=50Hz$; $T_{lead} \leq 51^\circ C$



Normalised Gate Trigger Voltage vs. Junction Temperature



■ TYPICAL CHARACTERISTICS(Cont.)



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