

UZ0107

TRIAC

LOGIC LEVEL
FOUR-QUADRANT TRIAC

■ DESCRIPTION

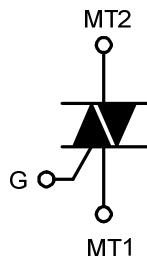
The UTC **UZ0107** is a logic level four-quadrant triac, it uses UTC's advanced technology to provide customers with enhanced current surge capability and high blocking voltage, etc.

The UTC **UZ0107** is suitable for low power AC Fan controllers, industrial process control and general purpose low power motor control, etc.

■ FEATURES

- * $I_{GT} \leq 5\text{mA}$, $I_{GT} \leq 10\text{mA}$ (T2- G+), $I_{TSM} \leq 12.5\text{A}$ ($t_p = 20\text{ms}$)
- $I_{TSM} \leq 13.8\text{A}$ ($t_p = 16.7\text{ms}$), $I_{T(RMS)} \leq 1\text{A}$
- * Enhanced current surge capability
- * Direct interfacing to logic level ICs
- * High blocking voltage of 800V
- * Enhanced noise immunity
- * Sensitive gate in four quadrants

■ SYMBOL

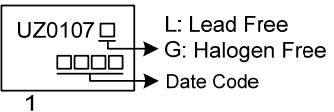
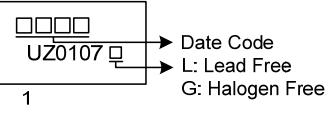
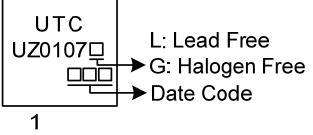


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UZ0107L-x-AA2-R	UZ0107G-x-AA2-R	SOT-223-2	MT1	MT2	GATE	Tape Reel
UZ0107L-x-AA3-R	UZ0107G-x-AA3-R	SOT-223	MT1	MT2	GATE	Tape Reel
UZ0107L-x-AB3-R	UZ0107G-x-AB3-R	SOT-89	MT1	MT2	GATE	Tape Reel
UZ0107L-x-T92-B	UZ0107G-x-T92-B	TO-92	MT1	GATE	MT2	Tape Box
UZ0107L-x-T92-K	UZ0107G-x-T92-K	TO-92	MT1	GATE	MT2	Bulk

UZ0107G-x-AA2-R 	(1) Packing Type (2) Package Type (3) Peak Voltage (4) Green Package	(1) R: Tape Reel, B: Tape Box, K: Bulk (2) AA2: SOT-223, AA3: SOT-223, AB3: SOT-89 T92: TO-92 (3) 6: 600V, 8: 800V (4) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

PACKAGE	MARKING
SOT-223-2 SOT-223	 <p>UZ0107 □ □□□ 1</p> <p>L: Lead Free G: Halogen Free Date Code</p>
SOT-89	 <p>□□□ UZ0107 □ 1</p> <p>Date Code L: Lead Free G: Halogen Free</p>
TO-92	 <p>UTC UZ0107 □ □□□ 1</p> <p>L: Lead Free G: Halogen Free Date Code</p>

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}/V_{RRM}	Full Sine Wave, $T_{SP} \leq 103^\circ\text{C}$			600	V
					800	V
Non-Repetitive Peak On-State Current	I_{TSM}	Full Sine Wave, $T_{J(\text{init})}=25^\circ\text{C}$, $t_p=20\text{ms}$			12.5	A
		Full Sine Wave, $T_{J(\text{init})}=25^\circ\text{C}$, $t_p=16.7\text{ms}$			13.8	A
RMS On-State Current	$I_{T(RMS)}$	Full Sine Wave, $T_{SP} \leq 103^\circ\text{C}$			1	A
Peak Gate Current	I_{GM}				1	A
Peak Gate Power	P_{GM}				2	W
Average Gate Power	$P_{G(AV)}$	Over Any 20ms Period			0.1	W
Junction Temperature	T_J				125	°C
Storage Temperature	T_{STG}		-40		+150	°C
I^2t for Fusing	I^2t	$t_p=10\text{ms}$, Sine-Wave Pulse			0.78	A^2s
Rate of Rise Of On-State Current	dI_t/dt	$I_T=1\text{A}$, $I_G=20\text{mA}$, $dI_G/dt=100\text{mA}/\mu\text{s}$, T2+ G+			50	$\text{A}/\mu\text{s}$
		$I_T=1\text{A}$, $I_G=20\text{mA}$, $dI_G/dt=100\text{mA}/\mu\text{s}$, T2+ G-			50	$\text{A}/\mu\text{s}$
		$I_T=1\text{A}$, $I_G=20\text{mA}$, $dI_G/dt=100\text{mA}/\mu\text{s}$, T2- G-			50	$\text{A}/\mu\text{s}$
		$I_T=1\text{A}$, $I_G=20\text{mA}$, $dI_G/dt=100\text{mA}/\mu\text{s}$, T2- G+			20	$\text{A}/\mu\text{s}$

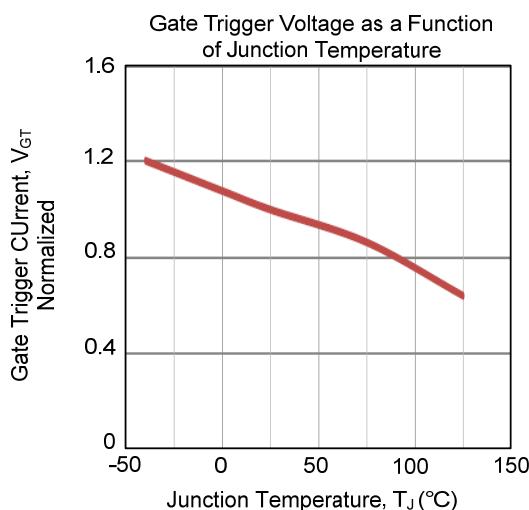
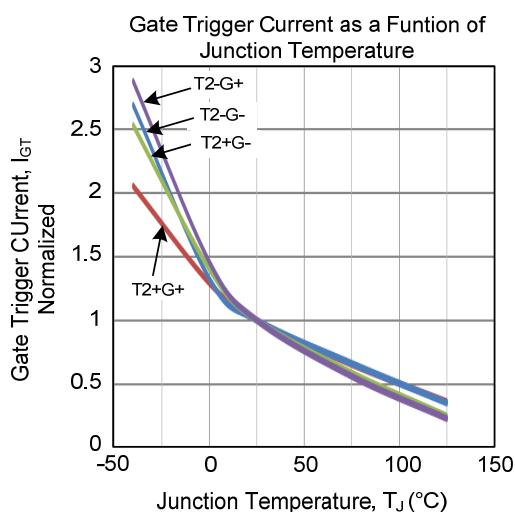
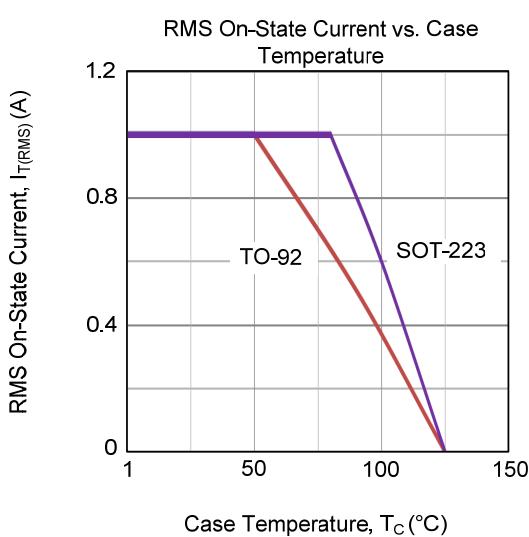
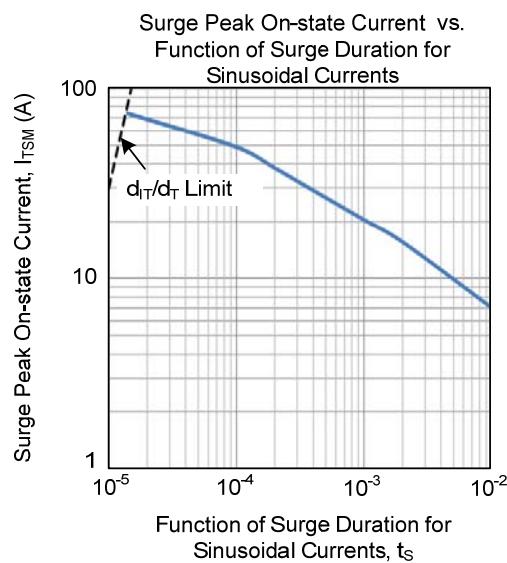
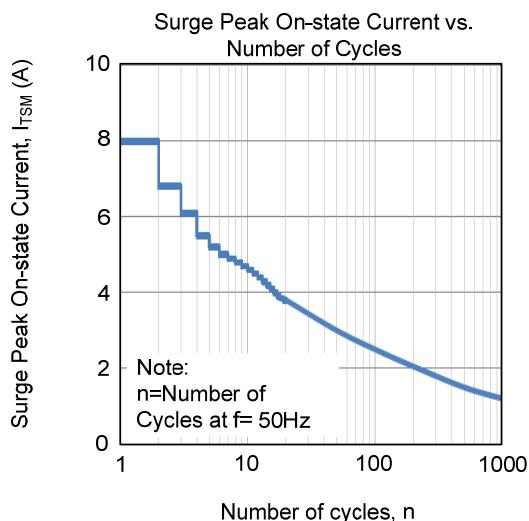
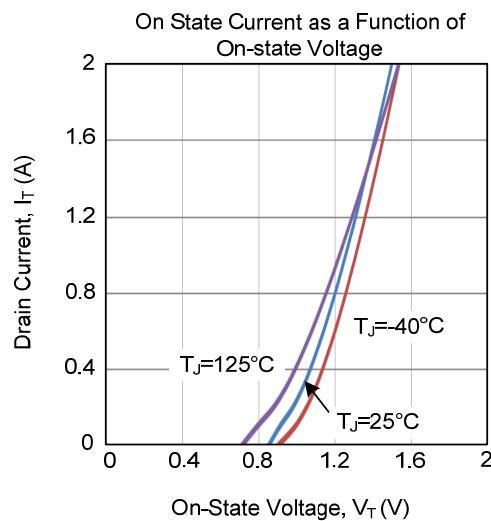
■ THERMAL DATA

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Thermal Resistance from Junction to Solder Point	θ_{J-SP}	Full Cycle			15	K/W	
Thermal resistance from junction to lead	θ_{J-Lead}				6	K/W	
Thermal Resistance from Junction to Ambient	SOT-223-2	θ_{JA}	Minimum Footprint, Printed-Circuit Board Mounted, in Free Air		156		K/W
	SOT-223		Pad Area, Printed-Circuit Board Mounted, in Free Air		70		K/W
	SOT-89		Minimum Footprint, Printed-Circuit Board Mounted, in Free Air		200		K/W
	TO-92		Vertical in Free Air		150		K/W

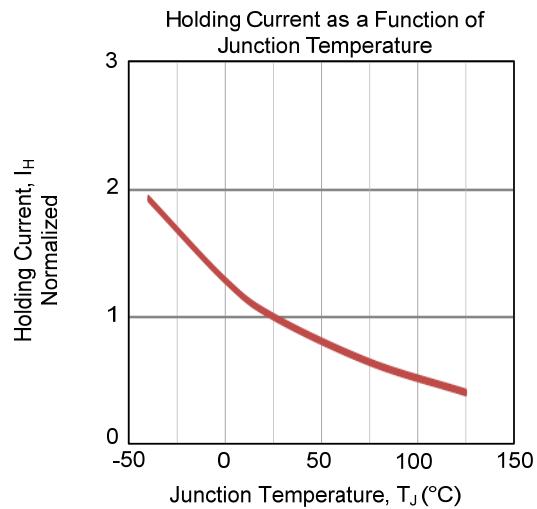
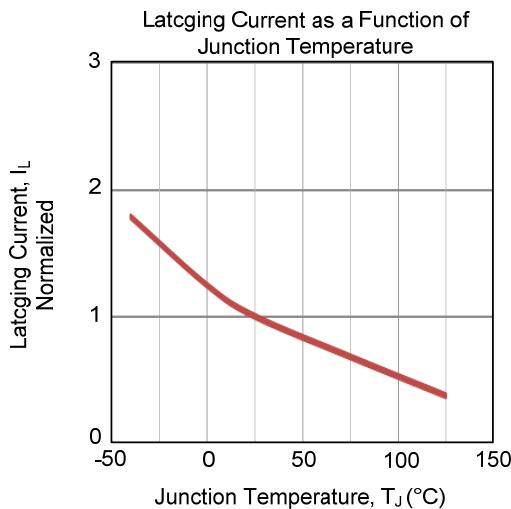
■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Gate Trigger Current ($T_J=25^\circ\text{C}$)	I_{GT}	$V_D=12V, I_T=0.1A, T2+ G+$	0.3		5	mA
		$V_D=12V, I_T=0.1A, T2+ G-$	0.3		5	mA
		$V_D=12V, I_T=0.1A, T2- G-$	0.3		5	mA
		$V_D=12V, I_T=0.1A, T2- G+$	0.3		10	mA
Latching Current ($T_J=25^\circ\text{C}$)	I_L	$V_D=12V, I_G=0.1A, T2+ G+$			10	mA
		$V_D=12V, I_G=0.1A, T2+ G-$			25	mA
		$V_D=12V, I_G=0.1A, T2- G-$			10	mA
		$V_D=12V, I_G=0.1A, T2- G+$			10	mA
Holding Current	I_H	$V_D=12V, T_J=25^\circ\text{C}$			10	mA
On-State Voltage	V_T	$I_T=1A, T_J=25^\circ\text{C}$		1.3	1.6	V
Gate Trigger Voltage	V_{GT}	$V_D=12V, I_T=0.1A, T_J=25^\circ\text{C}$			1.3	V
		$V_D= V_{DRM}=\text{Rated } V_{DRM} \text{ and } V_{RRM}$ $I_T=0.1A, T_J=125^\circ\text{C}$	0.2			V
Off-State Current	I_D	$V_D= V_{DRM}=\text{Rated } V_{DRM} \text{ and } V_{RRM}$ $R_{GK}=1k\Omega, T_J=125^\circ\text{C}$			0.5	mA
Rate of Rise of Off-State Voltage	dV_D/dt	$V_{DM}=402V, T_J=110^\circ\text{C}, \text{Gate Open Circuit}$	100			V/ μ s
Rate of Change of Commutating Voltage	dV_{com}/dt	$V_{DM}=400V, T_J=110^\circ\text{C},$ $dI_{com}/dt=0.44A/\text{ms},$ Gate Open Circuit	0.5			V/ μ s

■ TYPICAL CHARACTERISTICS



- TYPICAL CHARACTERISTICS (Cont.)



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