



UZ0107

Preliminary

TRIAC

LOGIC LEVEL FOUR-QUADRANT TRIAC

DESCRIPTION

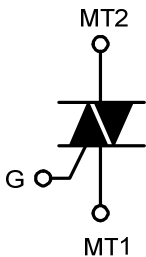
The UTC **UZ0107** is a logic level four-quadrant triac, it uses UTC's advanced technology to provide customers with enhanced current surge capability and high blocking voltage, etc.

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

FEATURES

- * $V_{DRM} \leq 600V$, $I_{GT} \leq 5mA$, $I_{GT} \leq 7mA$ (T2- G+), $I_{TSM} \leq 12.5A$ ($t_p = 20ms$)
- $I_{TSM} \leq 13.8A$ ($t_p = 16.7ms$), $I_{T(RMS)} \leq 1A$
- * Enhanced current surge capability
- * Direct interfacing to logic level ICs
- * High blocking voltage of 600V
- * Enhanced noise immunity
- * Sensitive gate in four quadrants

SYMBOL

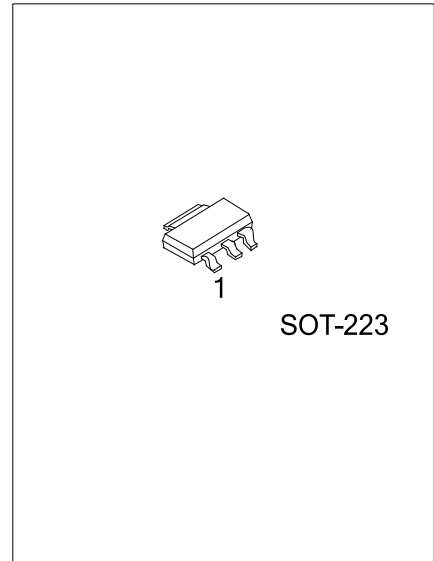
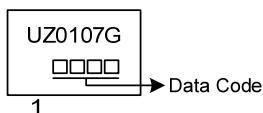


ORDERING INFORMATION

| Ordering Number | Package | Pin Assignment | | | Packing |
|-----------------|---------|----------------|-----|------|-----------|
| | | 1 | 2 | 3 | |
| UZ0107G-x-AA3-R | SOT-223 | MT1 | MT2 | GATE | Tape Reel |

| | | |
|-----------------|-------------------|-----------------------------------|
| UZ0107G-x-AA3-R | (1) Packing Type | (1) R: Tape Reel |
| | (2) Package Type | (2) AA3: SOT-223 |
| | (3) Peak Voltage | (3) 6: 600V, 8: 800V |
| | (4) Green Package | (4) G: Halogen Free and Lead Free |

MARKING



■ ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|--------------|---|-----|-----|------|-------------|
| Repetitive Peak Off-State Voltage | V_{DRM} | Full Sine Wave, $T_{SP} \leq 103^{\circ}C$ | | | 600 | V |
| | | | | | 800 | V |
| Non-Repetitive Peak On-State Current | I_{TSM} | Full Sine Wave, $T_{J(init)}=25^{\circ}C$, $t_p=20ms$ | | | 12.5 | A |
| | | Full Sine Wave, $T_{J(init)}=25^{\circ}C$, $t_p=16.7ms$ | | | 13.8 | A |
| RMS On-State Current | $I_{T(RMS)}$ | Full Sine Wave, $T_{SP} \leq 103^{\circ}C$ | | | 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 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | | -40 | | 150 | $^{\circ}C$ |
| I^2t for Fusing | I^2t | $t_p=10ms$, Sine-Wave Pulse | | | 0.78 | A^2s |
| Rate of Rise Of On-State Current | di_T/dt | $I_T=1A$, $I_G=20mA$, $di_G/dt=100mA/\mu s$, T2+ G+ | | | 50 | $A/\mu s$ |
| | | $I_T=1A$, $I_G=20mA$, $di_G/dt=100mA/\mu s$, T2+ G- | | | 50 | $A/\mu s$ |
| | | $I_T=1A$, $I_G=20mA$, $di_G/dt=100mA/\mu s$, T2- G- | | | 50 | $A/\mu s$ |
| | | $I_T=1A$, $I_G=20mA$, $di_G/dt=100mA/\mu s$, T2- G+ | | | 20 | $A/\mu s$ |

■ 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 Ambient | θ_{JA} | Minimum Footprint, Printed-Circuit Board Mounted, in Free Air | | 156 | | K/W |
| | | Pad Area, Printed-Circuit Board Mounted, in Free Air | | 70 | | K/W |

■ ELECTRICAL CHARACTERISTICS

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---------------|--|-----|-----|-----|-----------|
| Gate Trigger Current ($T_J=25^{\circ}C$) | 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 | | 7 | mA |
| Latching Current ($T_J=25^{\circ}C$) | 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 | $V_D=12V$, $T_J=25^{\circ}C$ | | | 10 | mA |
| On-State Voltage | V_T | $I_T=1A$, $T_J=25^{\circ}C$ | | 1.3 | 1.6 | V |
| Gate Trigger Voltage | V_{GT} | $V_D=12V$, $I_T=0.1A$, $T_J=25^{\circ}C$ | | | 1.3 | V |
| | | $V_D=600V$, $I_T=0.1A$, $T_J=125^{\circ}C$ | 0.2 | | | V |
| Off-State Current | I_D | $V_D=600V$, $T_J=125^{\circ}C$ | | | 0.5 | mA |
| Rate of Rise of Off-State Voltage | dV_D/dt | $V_{DM}=402V$, $T_J=110^{\circ}C$, Gate Open Circuit | 100 | | | $V/\mu s$ |
| Rate of Change of Commutating Voltage | dV_{com}/dt | $V_{DM}=400V$, $T_J=110^{\circ}C$, $di_{com}/dt=0.44A/ms$, Gate Open Circuit | 0.5 | | | $V/\mu s$ |

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