



UZ0103

Preliminary

TRIAC

1A TRIAC

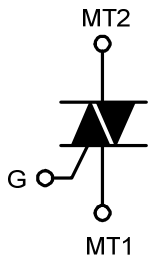
DESCRIPTION

The UTC **UZ0103** is a 1A triac, it is suitable for general purpose AC switching applications, fan speed controllers and home appliances.

FEATURES

- * $I_{GT} \leq 3\text{mA}$ (I-II-III), $I_{GT} \leq 5\text{mA}$ (IV)
- $I_{TSM} \leq 8\text{A}$ ($t=20\text{ms}$), $I_{TSM} \leq 8.5\text{A}$ ($t=16.7\text{ms}$)
- $I_{T(RMS)} \leq 1\text{A}$

SYMBOL



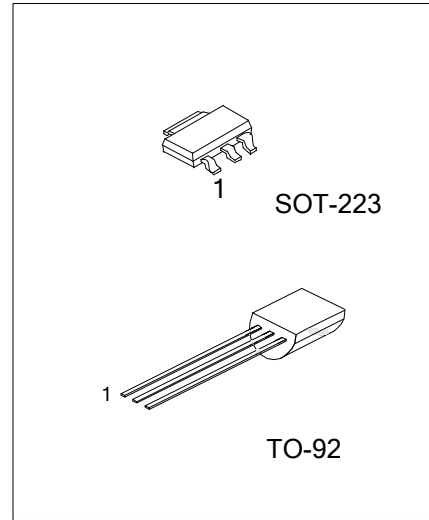
ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-----------------|-----------------|---------|----------------|------|------|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| - | UZ0103G-x-AA3-R | SOT-223 | MT1 | MT2 | GATE | Tape Reel |
| UZ0103L-x-T92-B | UZ0103G-x-T92-B | TO-92 | MT1 | GATE | MT2 | Tape Box |
| UZ0103L-x-T92-K | UZ0103G-x-T92-K | TO-92 | MT1 | GATE | MT2 | Bulk |

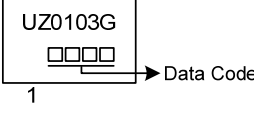
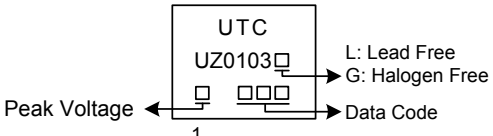
| | | |
|-----------------|------------------|---|
| UZ0103G-x-AA3-R | (1)Packing Type | (1) R: Tape Reel |
| | (2)Package Type | (2) AA3: SOT-223, T92: TO-92 |
| | (3)Peak Voltage | (3) 6: 600V, 8: 800V |
| | (4)Green Package | (4) G: Halogen Free and Lead Free, L: Lead Free |

SENSITIVITY AND TYPE

| VOLTAGE CODE | VOLTAGE | | SENSITIVITY | TYPE |
|--------------|---------|------|-------------|----------|
| | 600V | 800V | | |
| 6 | ⊙ | | 3mA | STANDARD |
| 8 | | ⊙ | 3mA | STANDARD |



MARKING

| SOT-223 | TO-92 |
|---|--|
|  <p>UZ0103G □□□□ → Data Code 1</p> |  <p>UTC UZ0103□ □□□□ → Data Code 1</p> <p>Peak Voltage ←</p> <p>L: Lead Free G: Halogen Free</p> |

■ ABSOLUTE MAXIMUM RATINGS

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---|---|--------------|----------|------------------------|
| Repetitive Peak Off-State Voltage | UZ0103-6 | V_{DRM} | 600 | V |
| | UZ0103-8 | | 800 | V |
| Repetitive Peak Reverse Voltage | UZ0103-6 | V_{RRM} | 600 | V |
| | UZ0103-8 | | 800 | V |
| RMS On-State Current (full sine wave) | $T_L=50^\circ\text{C}$ | $I_{T(RMS)}$ | 1 | A |
| Non Repetitive Surge Peak On-State Current (full cycle, T_J initial= 25°C) | F=50Hz, $t=20\text{ms}$ | I_{TSM} | 8 | A |
| | F=60Hz, $t=16.7\text{ms}$ | | 8.5 | A |
| I^2t Value for Fusing | $t_p=10\text{ms}$ | I^2t | 0.35 | A^2s |
| Critical Rate of Rise of On-State Current: $I_G=2*I_{GT}$, $t_r \leq 100\text{ns}$ | F=120Hz, $T_J=125^\circ\text{C}$ | di/dt | 20 | $\text{A}/\mu\text{s}$ |
| Peak Gate Current | $t_p=20\mu\text{s}$, $T_J=125^\circ\text{C}$ | I_{GM} | 1 | A |
| Average Gate Power Dissipation | $T_J=125^\circ\text{C}$ | $P_{G(AV)}$ | 1 | W |
| Operating Junction Temperature | | T_J | -40~+125 | $^\circ\text{C}$ |
| Storage Junction Temperature | | T_{STG} | -40~+150 | $^\circ\text{C}$ |

Note: 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.

■ THERMAL RESISTANCES

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---------------------|---------|---------------|---------|---------------------------|
| Junction to Ambient | TO-92 | θ_{JA} | 150 | $^\circ\text{C}/\text{W}$ |
| | SOT-223 | | 60 | $^\circ\text{C}/\text{W}$ |
| Junction to Case | TO-92 | θ_{JC} | 60 | $^\circ\text{C}/\text{W}$ |
| | SOT-223 | | 25 | $^\circ\text{C}/\text{W}$ |

Note: S=Copper surface under tab

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

| PARAMETER | SYMBOL | TEST CONDITIONS | QUADRANT | MIN | TYP | MAX | UNIT |
|---|-----------------------|--|-------------------------|-----|-----|------|------------------------|
| Repetitive Peak Off-State or Reverse Current | I_{DRM} , I_{RRM} | $V_{DRM}=V_{RRM}$ | $T_J=25^\circ\text{C}$ | | | 5 | μA |
| | | | $T_J=125^\circ\text{C}$ | | | 0.5 | mA |
| Gate Trigger Current (Note 1) | I_{GT} | $V_D=12\text{V}$, $R_L=30\Omega$ | I-II-III | | | 3 | mA |
| | | | IV | | | 5 | mA |
| Gate Trigger Voltage | V_{GT} | | ALL | | | 1.3 | V |
| Gate Non-Trigger Voltage | V_{GD} | $V_D=V_{DRM}$, $R_L=3.3\text{k}\Omega$, $T_J=125^\circ\text{C}$ | ALL | 0.2 | | | V |
| Holding Current (Note 2) | I_H | $I_T=50\text{mA}$ | | | | 7 | mA |
| Latching Current | I_L | $I_G=1.2I_{GT}$ | I-III-IV | | | 7 | mA |
| | | | II | | | 15 | mA |
| Rise of Off-State Voltage (Note 2) | dV_D/dt | $V_D=67\%V_{DRM}$, Gate Open, $T_J=110^\circ\text{C}$ | | 10 | | | $\text{V}/\mu\text{s}$ |
| Rise of Off-State Voltage at Commutation (Note 2) | $(dV_{COM}/dt)_C$ | $(di/dt)_C=0.44\text{A}/\text{ms}$, $T_J=110^\circ\text{C}$ | | 0.5 | | | $\text{V}/\mu\text{s}$ |
| On-State Voltage (Note 2) | V_{TM} | $I_{TM}=1.4\text{A}$, $t_p=380\mu\text{s}$, $T_J=25^\circ\text{C}$ | | | | 1.56 | V |
| Dynamic Resistance (Note 2) | R_D | Dynamic resistance, $T_J=125^\circ\text{C}$ | | | | 400 | $\text{m}\Omega$ |

Notes: 1. Minimum I_{GT} is guaranteed at 5% of I_{GT} max.

2. For both polarities of MT2 referenced to MT1.

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