

Switching Gas Discharge Tubes

Gas Plasma Voltage Dependent Switches

RoHS XT Series

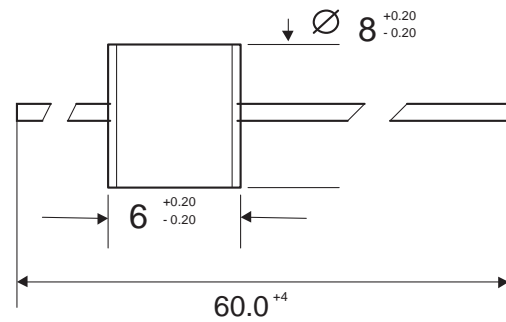
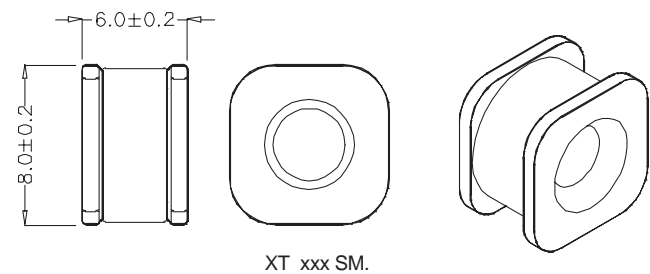
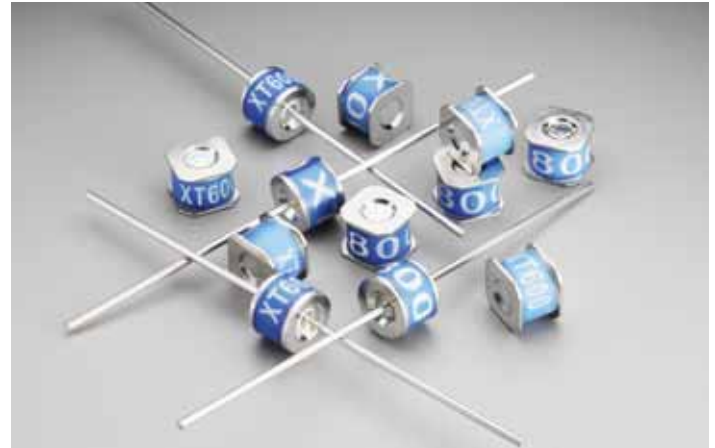
The XT Series is a 2-terminal bi-directional, voltage triggered switch designed for Xenon HID 'hot re-strike' circuits such as those found in automobiles. Switching voltages for the devices are fixed depending on the part number selected. The gas plasma trigger technology offers very fast switching speeds, resulting in significantly better di/dt values when compared to silicon based SIDAC devices. Due to the high switching voltage of the devices, step-up transformer sizes and specifications can be reduced saving cost, size and weight.

Features

- RoHS compliant
- 2 terminal configuration.
- Very high switching speed once switching voltage has been reached, resulting in high di/dt to be generated enabling the best performance to be extracted from ignition transformers.
- High lifetime and stability.
- Switching performance is virtually unaffected by changes in ambient temperature.
- Tape and Reel to EIA 481-1

Applications

- This product is optimised for Xenon HID 'Hot re-strike' circuits which require a very high number of operations at high current levels. The switching time is typically 10nS for the best possible efficiency.

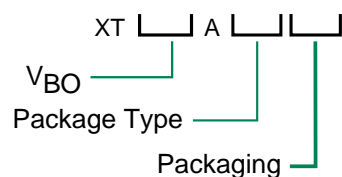


Dimensions in mm

Mechanical Specifications:

- Weight (ballast circuit only):** 1.42g (0.049oz.)
- Materials:** Electrode Base: Copper alloy
Electrode Plating material: Bright Sn
Body: Ceramic
- Device Marking:** Littelfuse 'LF' marking, voltage and product code

ORDERING INFORMATION



A= Axial lead tape and reel
SM= Surface Mount

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Device Ratings and Specifications

| Part Number | $V_{BO}^{(1) (7)}$ (V) | Max Ignition | $V_T @ 5A$ (V) | $I_{DRM}^{(2)}$ (A) | $I_{BO}^{(2)}$ (mA) | $C_O^{(4)}$ (pF) | V_{BO} to V_T (ns) | R_S (M) |
|-------------|---------------------------|--------------|-------------------|------------------------|------------------------|---------------------|---------------------------|--------------|
| XT350 | 297 – 403 | 463 | 15 | 1.0 | 5 | 1.5 | 25 | >1 |
| XT600 | 510 – 690 | 750 | 15 | 1.0 | 5 | 1.5 | 25 | >1 |
| XT800 | 680 – 920 | 1000 | 15 | 1.0 | 5 | 1.5 | 25 | >1 |

Electrical Life:

Switching Cycles ⁽⁵⁾ 150,000

Maximum Ratings:

Max Switching Frequency⁽⁶⁾ 400 Hz

Storage Temperature TSTG -40 - +150°C

Operating Temperature -40 - +150°C

Notes:

- (1) Measured on recommended test circuit (fig 1.)
- (2) Measured @ 100 Volts DC
- (3) Current required for transition to on-state
- (4) Measured @ 1 MHz, zero Volt bias
- (5) Measured on recommended test circuit (fig 2.)
- (6) Duty Cycle: 1sec on, 10 sec off.
- (7) Will retain these limits during life cycle

Definitions:

V_{BO} – Breakover Voltage

$V_T @ 5A$ – Nominal Off-state Voltage at 5A

I_{DRM} – Off-state Current

I_{BO} – Nominal Breakover Current

C_O - Max Capacitance

V_{BO} to V_T – Max switching time from V_{BO} to V_T

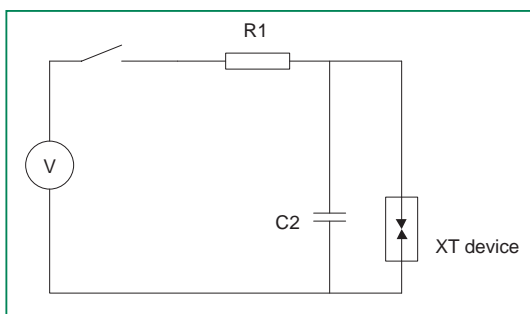


Fig 1. Recommended breakover voltage test circuit

V: open circuit DC voltage =500 (1000V for 600 and 800Vparts)
 R1 =51KΩ
 C1 =220nF

Discharge current =10 mAmps (approx)

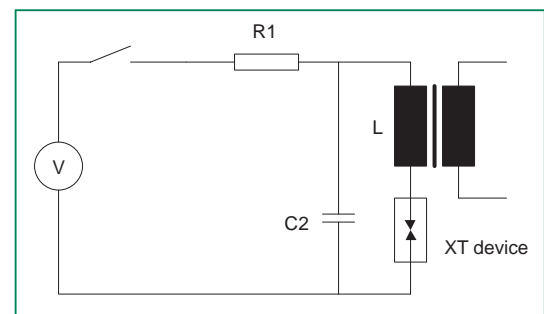


Fig 2. Recommended life test circuit

V: open circuit DC voltage =500 (1000V for 600 and 800V parts)
 R1 =10KΩ
 C1 =680nF
 L =0.5μH

Discharge current =500Amps (approx)