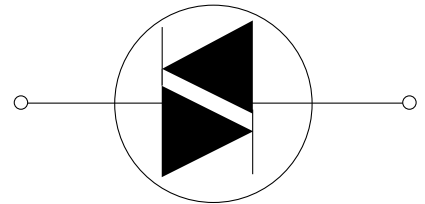
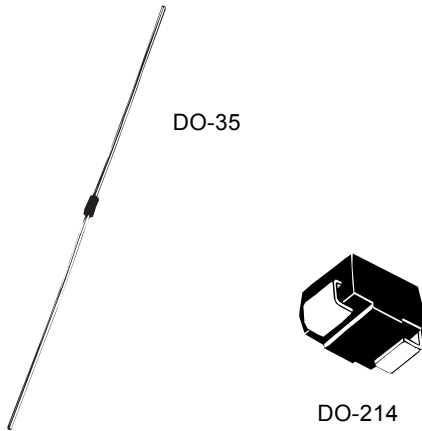


E8

Diac

HT and ST Series 

General Description

Teccor's HT and ST Series of bilateral trigger diacs offer a range of voltage characteristics from 27 V to 70 V.

A diac semiconductor is a full-wave or bidirectional thyristor. It is triggered from a blocking state to a conduction state for either polarity of applied voltage whenever the amplitude of applied voltage exceeds the breakover voltage rating of the diac.

The Teccor line of diacs features glass-passivated junctions to ensure long-term reliability and parameter stability. Teccor's glass offers a rugged, reliable barrier against junction contamination.

The diac specifications listed in this data sheet are for standard products. Special parameter selections such as close tolerance voltage symmetry are available. Consult the factory for more information about custom design applications.

Features



- RoHS Compliant
- Bilateral triggering device
- Glass-passivated junctions
- Wide voltage range selections

ST Series

- Epoxy SMT package
- High-temperature, solder-bonded die attachment

HT Series

- DO-35 trigger package
- Pre-tinned leads

| Electrical Characteristics $T_C = 25^\circ\text{C}$ | | | | | | | |
|--|---|---|-----|---|-------------------------------|---|---|
| Part No. | | V_{BO} | | ΔV_{BO} | V_{BB} | I_{BO} | I_{TRM} |
|  DO-35 |  DO-214 | Breakover Voltage (Forward and Reverse) | | Breakover Voltage Symmetry | Dynamic Breakback Voltage (3) | Peak Breakover Current at Breakover Voltage | Peak Pulse Current for 10 μs 120 PPS $T_A \leq 40^\circ\text{C}$ |
| | | Volts | | $\Delta V_{BO} = [+V_{BO} - -V_{BO}]$ | $ \Delta V_{\pm} $ | μAmps | Amps |
| | | MIN | MAX | MAX | MIN | MAX | MAX |
| HT-32 | ST-32 | 27 | 37 | 3 (1) | 10 (2) | 25 | 2 |
| HT-32A / HT-5761 | | 28 | 36 | 2 (1) | 7 at 10 mA (4) | 25 | 2 |
| HT-32B / HT-5761A | ST-32B | 30 | 34 | 2 (1) | 7 at 10 mA (4) | 25 | 2 |
| HT-34B | ST-34B | 32 | 36 | 2 (1) | 10 (2) | 25 | 2 |
| HT-35 | ST-35 | 30 | 40 | 3 (1) | 10 (2) | 25 | 2 |
| HT-36A / HT-5762 | ST-36A | 32 | 40 | 2 (1) | 7 at 10 mA (4) | 25 | 2 |
| HT-36B | ST-36B | 34 | 38 | 2 (1) | 10 (2) | 25 | 2 |
| HT-40 | ST-40 | 35 | 45 | 3 (1) | 10 (2) | 25 | 2 |
| HT-60 | | 56 | 70 | 4 | 20 (2) | 25 | 1.5 |

General Notes

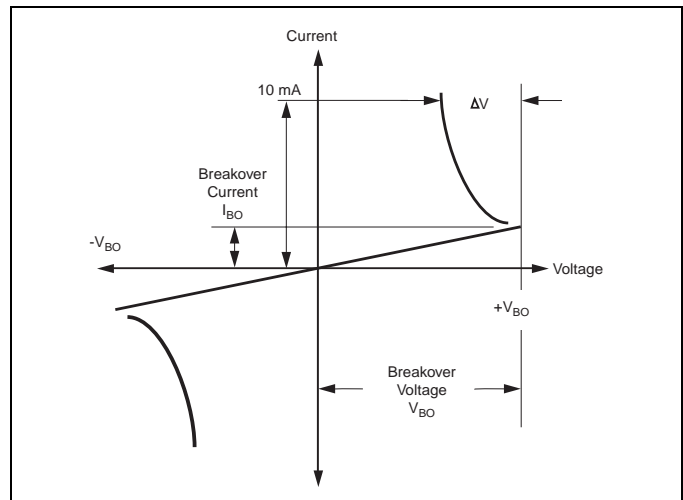
- Lead solder temperature is $+230^\circ\text{C}$ for 10-second maximum; $\geq 1/16"$ (1.59 mm) from case.
- See "Package Dimensions" section of this catalog.

Electrical Specification Notes



- (1) Breakover voltage symmetry as close as 1 V is available from the factory on these products.
- (2) See Figure E8.4 and Figure E8.5 for test circuit and waveforms.
- (3) Typical switching time is 900 nano-seconds measured at I_{PK} (Figure E8.4) across a 20 Ω resistor (Figure E8.5). Switching time is defined as rise time of I_{PK} between the 10% to 90% points.
- (4) See V-I Characteristics.

Bilateral Trigger DIAC Specifications

- Maximum Ratings, Absolute-Maximum Values
 - Maximum Trigger Firing Capacitance: 0.1 μF
 - Device dissipation (at $T_A = -40^\circ\text{C}$ to $+40^\circ\text{C}$): 250 mW for DO-35 and 300 mW for DO-214
 - Derate above $+40^\circ\text{C}$: 3.6 mW/ $^\circ\text{C}$ for DO-35 and 3 mW/ $^\circ\text{C}$ for DO-214
- Temperature Ranges
 - Storage: -40°C to $+125^\circ\text{C}$
 - Operating (Junction): -40°C to $+125^\circ\text{C}$



V-I Characteristics

| HT and ST Series Thermal Resistance Junction to Lead - $R_{\theta JL}$: $^\circ\text{C/W}$ Junction to Ambient [$R_{\theta JA}$]: $^\circ\text{C/W}$ (based on maximum lead temperature of 90 $^\circ\text{C}$ for DO-214 and 85 $^\circ\text{C}$ for DO-35 devices) | |
|---|--|
| Y Package  DO-35 | S Package  DO-214 |
| 100 [278] $^\circ\text{C/W}$ | 65 $^\circ\text{C/W}^*$ |

* Mounted on 1 cm² copper foil surface; two-ounce copper foil

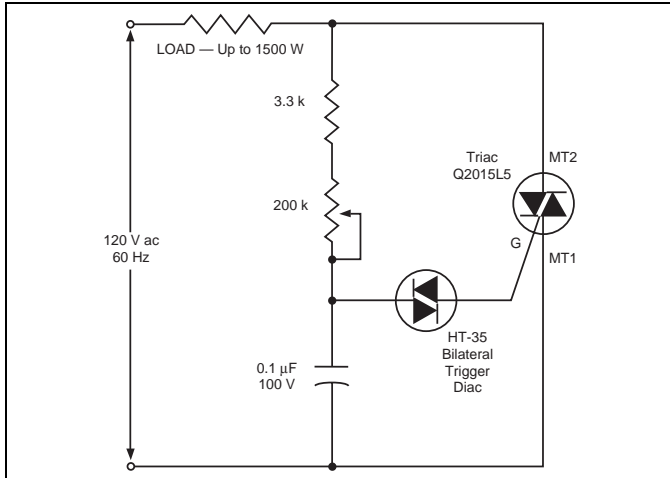


Figure E8.1 Typical Diac/Triac Full-wave Phase Control Circuit Using Lower Voltage Diacs.

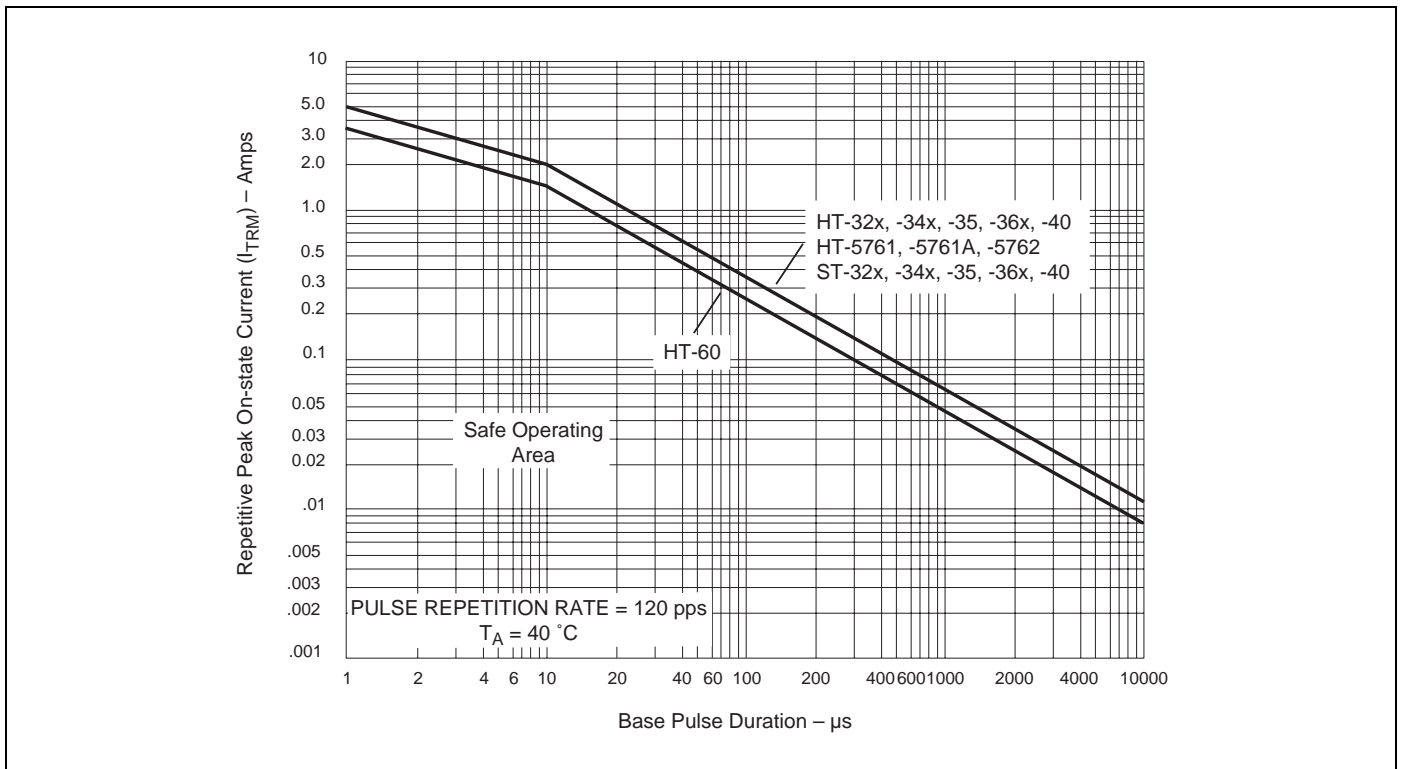


Figure E8.2 Repetitive Peak On-state Current versus Pulse Duration

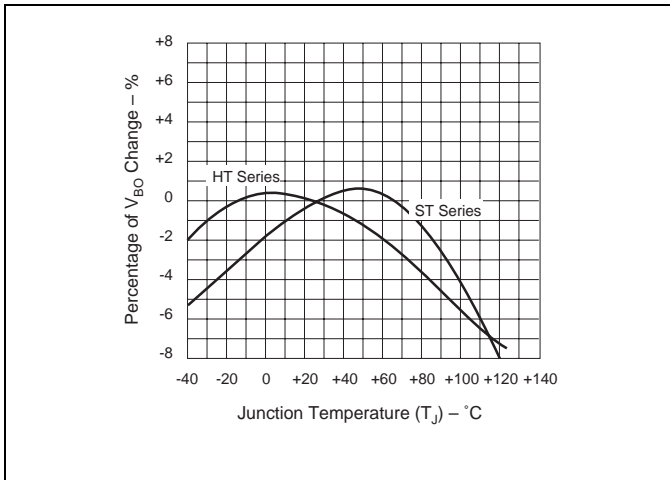


Figure E8.3 Normalized V_{BO} Change versus Junction Temperature

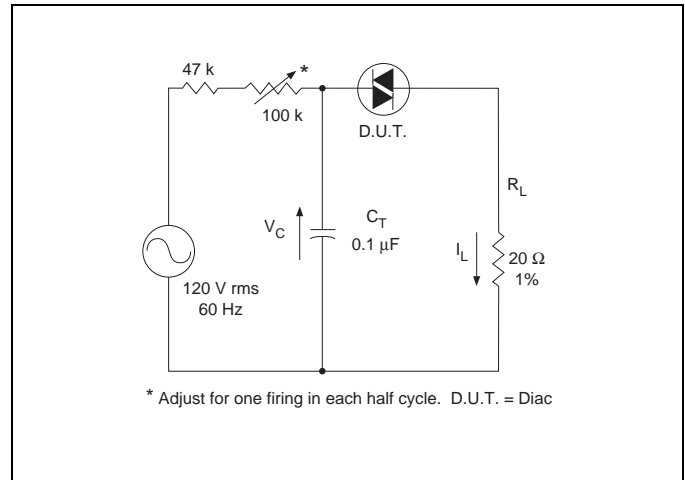


Figure E8.5 Circuit Used to Measure Diac Characteristics (Refer to Figure E8.4.)

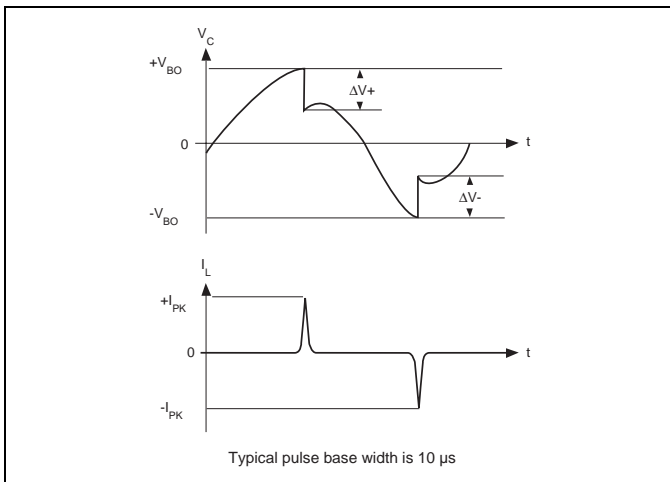


Figure E8.4 Test Circuit Waveforms (Refer to Figure E8.5.)

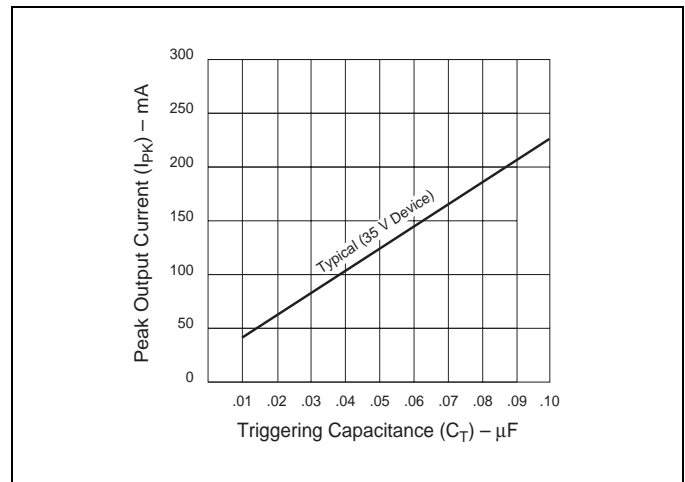


Figure E8.6 Peak Output Current versus Triggering Capacitance (Per Figure E8.5 with R_L of 20 Ω)

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