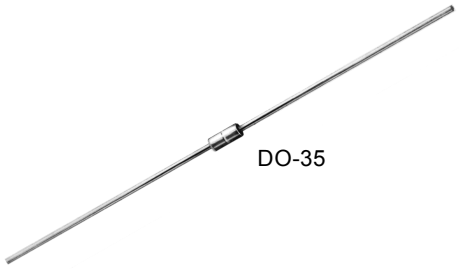
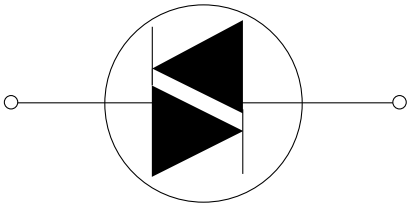
8



DO-35



DO-214AA



# Bilateral Trigger Diacs

## HT and ST Series

### General Description

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

The diac semiconductor is a full-wave or bidirectional thyristor. It is triggered from a blocking-to-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 device 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. Please consult the factory for more information for custom design applications. Suffix RP signifies tape-and-reel packing. Example: HT32RP.

### Features

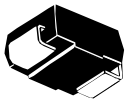
- **Glass passivated junctions**
- **Wide voltage range selections**

### "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°C | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Part No.** | | $V_{BO}$ | | $\Delta V_{BO}$ | $V_{BB}$ | $I_{BO}$ | $I_{TRM}$ |
|  DO-35 |  DO-214AA | Breakover Voltage (Forward and Reverse) Volts | | Breakover Voltage Symmetry $\Delta V_{BO}$ = $[\,\lvert +V_{BO}\rvert - \lvert -V_{BO}\rvert\,]$ Volts | Dynamic Breakback Voltage (3) $\lvert \Delta V\pm \rvert$ Volts | Peak Breakover Current at Breakover Voltage µAmps | Peak Pulse Current for 10µs 120 PPS $T_A \leq 40°C$ Amps |
| | | MIN | MAX | MAX | MIN | MAX | MAX |
| **HT-32** | | **27** | **37** | **3 (1)** | **10 (2)** | **25** | **2.0** |
| **HT-32A / HT-5761** | | **28** | **36** | **2 (1)** | **7 at 10mA (4)** | **25** | **2.0** |
| **HT-32B / HT-5761A** | | **30** | **34** | **2 (1)** | **7 at 10mA (4)** | **25** | **2.0** |
| **HT-34B** | **ST-34B** | **32** | **36** | **2 (1)** | **10 (2)** | **25** | **2.0** |
| **HT-35** | **ST-35** | **30** | **40** | **3 (1)** | **10 (2)** | **25** | **2.0** |
| **HT-36A / HT-5762** | **ST-36A** | **32** | **40** | **2 (1)** | **7 at 10mA (4)** | **25** | **2.0** |
| **HT-36B** | **ST-36B** | **34** | **38** | **2 (1)** | **10 (2)** | **25** | **2.0** |
| **HT-40** | **ST-40** | **35** | **45** | **3 (1)** | **10 (2)** | **25** | **2.0** |
| **HT-60** | | **56** | **70** | **4** | **20 (2)** | **25** | **1.5** |

## General Notes

- Lead solder temperature is +230°C max. for 10 seconds max.; ≥ 1/16" (1.59mm) from case.
- See “Package Dimensions” section of this catalog.

## Electrical Specification Notes

(1) Breakover Voltage symmetry as close as 1.0V is available from factory on these products.

(2) See Figures 8.4 and 8.5 for Test Circuit and waveforms.

(3) Typical switching time is 900 nano-seconds measured at $I_{PK}$ (see Figure 8.4) across a 20Ω resistor (see Figure 8.5). Switching time defined as rise time of $I_{PK}$ between the 10% to 90% points.

(4) See Figure 8.7.

## Bilateral Trigger DIAC Specifications

- Maximum Ratings, Absolute-Maximum Values

  Maximum Trigger Firing Capacitance: 0.1µF
  Device Dissipation (at $T_A$ = -40° to +40°C): 250mW for DO-35 and 300mW for DO-214AA
  Derate Above +40°C: 3.6mW/°C for DO-35 and 3mW/°C for DO-214AA

- Temperature Ranges

  Storage: -40°C to +125°C
  Operating (Junction): -40°C to +125°C

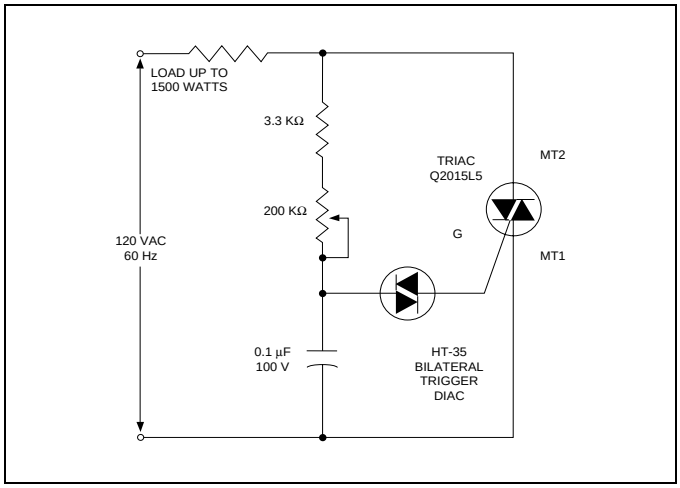
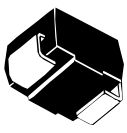



Figure 8.1 Typical Diac-Triac Full-Wave Phase Control Circuit using Lower Voltage Diacs

| **HT and ST Series Thermal Resistance**<br>**Junction to Lead - $R_{\theta JL}$: °C/W**<br>**Junction to Ambient [$R_{\theta JA}$]: °C/W**<br>**(based on maximum lead temperature of 90°C for DO-214AA and 85°C for DO-35 devices)** | |
|---|---|
| Y | S |
|  |  |
| DO-35 | DO-214AA |
| 100 [278] °C/W | 65 [200] °C/W |

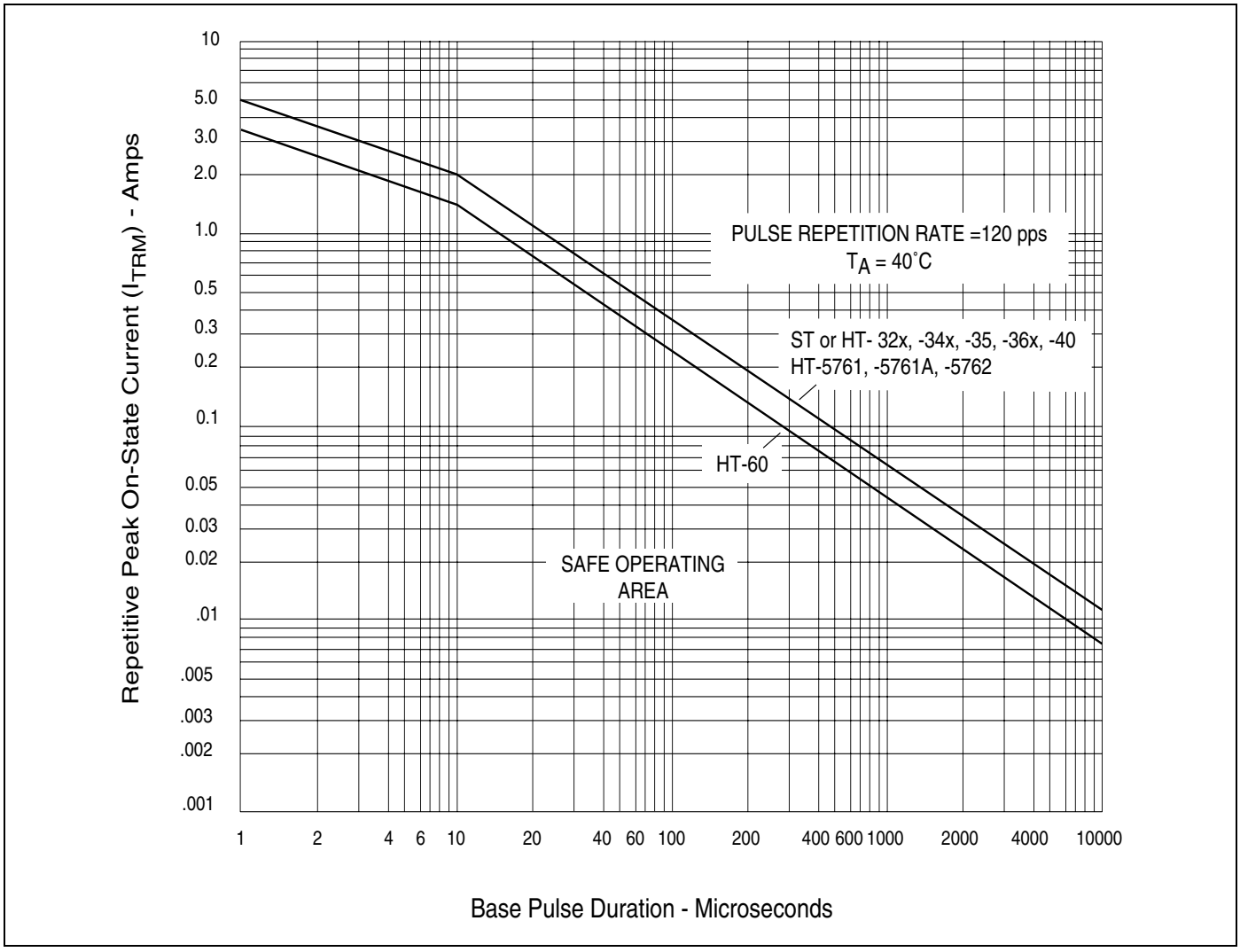



Figure 8.2 Repetitive Peak On-State Current vs Pulse Duration

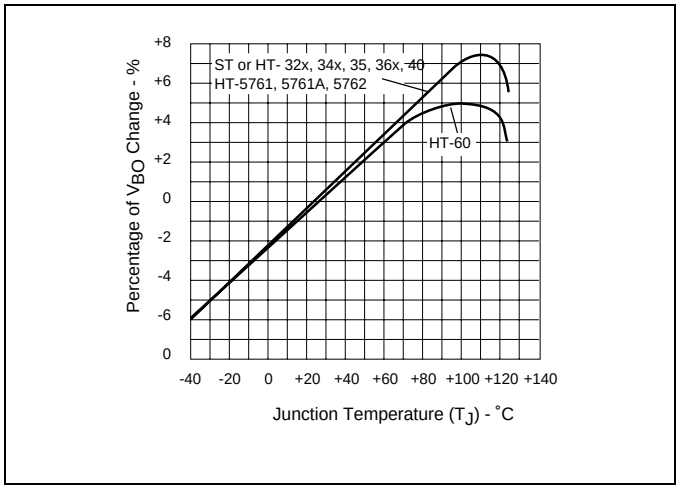



Figure 8.3 Normalized $V_{BO}$ Change vs Junction Temperature

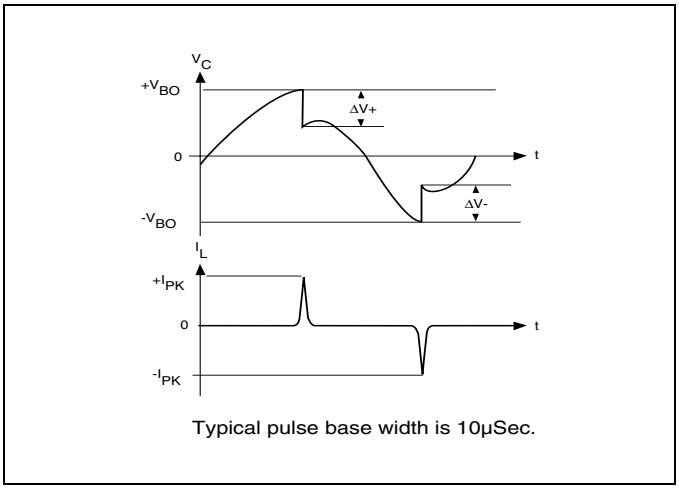



Figure 8.4 Test Circuit Waveforms (See Figure 8.5.)

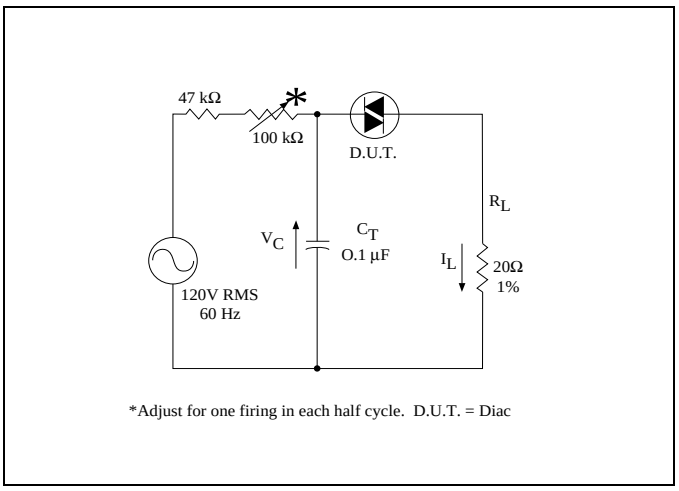



Figure 8.5 Circuit Used to Measure Diac Characteristics (See Figure 8.4.)

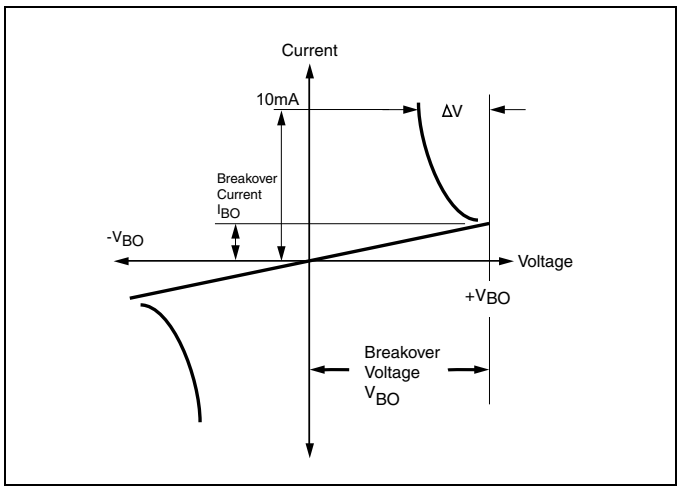



Figure 8.7 V-I Characteristics

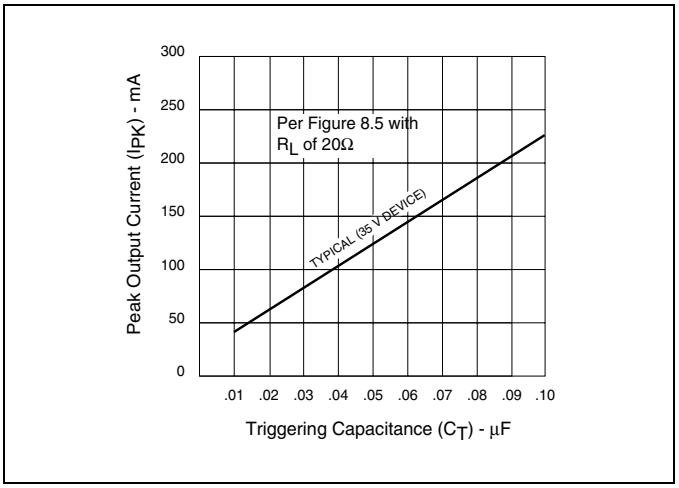



Figure 8.6 Peak Output Current vs Triggering Capacitance

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