

# 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


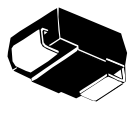
- Glass passivated junctions
- Wide voltage range selections

#### "ST" Series

- Epoxy SMT package
- High temperature solder bonded die attachment

#### "HT" Series

- DO-35 trigger package
- Pre-tinned leads

ELECTRICAL CHARACTERISTICS $T_C = 25^\circ\text{C}$							
Part No.		$V_{BO}$		$\Delta V_{BO}$	$V_{BB}$	$I_{BO}$	$I_{TRM}$
		Breakover Voltage (Forward and Reverse)		Breakover Voltage Symmetry	Dynamic Breakback Voltage (3)	Peak Breakover Current at Breakover Voltage	Peak Pulse Current for 10µs 120 PPS $T_A \leq 40^\circ\text{C}$
		Volts		Volts	Volts	µAmps	Amps
DO-35	DO-214AA	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.;  $\geq 1/16"$  (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  $T_A = -40^\circ$  to  $+40^\circ\text{C}$ ): 250mW for DO-35 and 300mW for DO-214AA  
 Derate Above  $+40^\circ\text{C}$ : 3.6mW/°C for DO-35 and 3mW/°C for DO-214AA
- Temperature Ranges  
 Storage:  $-40^\circ\text{C}$  to  $+125^\circ\text{C}$   
 Operating (Junction):  $-40^\circ\text{C}$  to  $+125^\circ\text{C}$

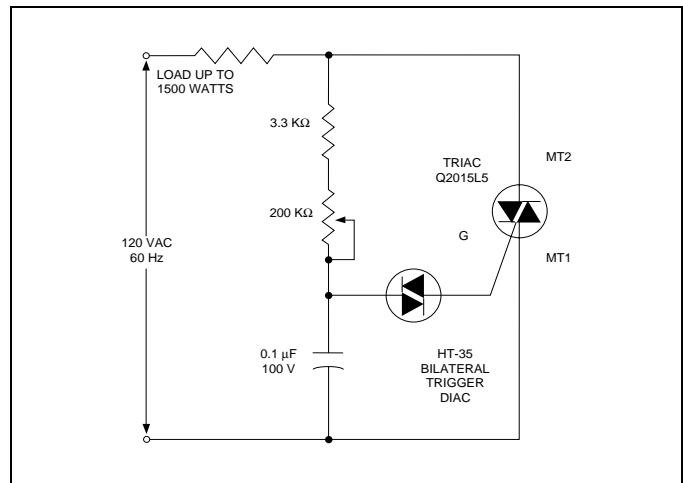

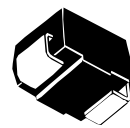


Figure 8.1 Typical Diac-Triac Full-Wave Phase Control Circuit using Lower Voltage Diacs

HT and ST Series Thermal Resistance	
Junction to Lead - $R_{\theta JL}$ : °C/W	
Junction to Ambient [ $R_{\theta JA}$ ]: °C/W	
(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

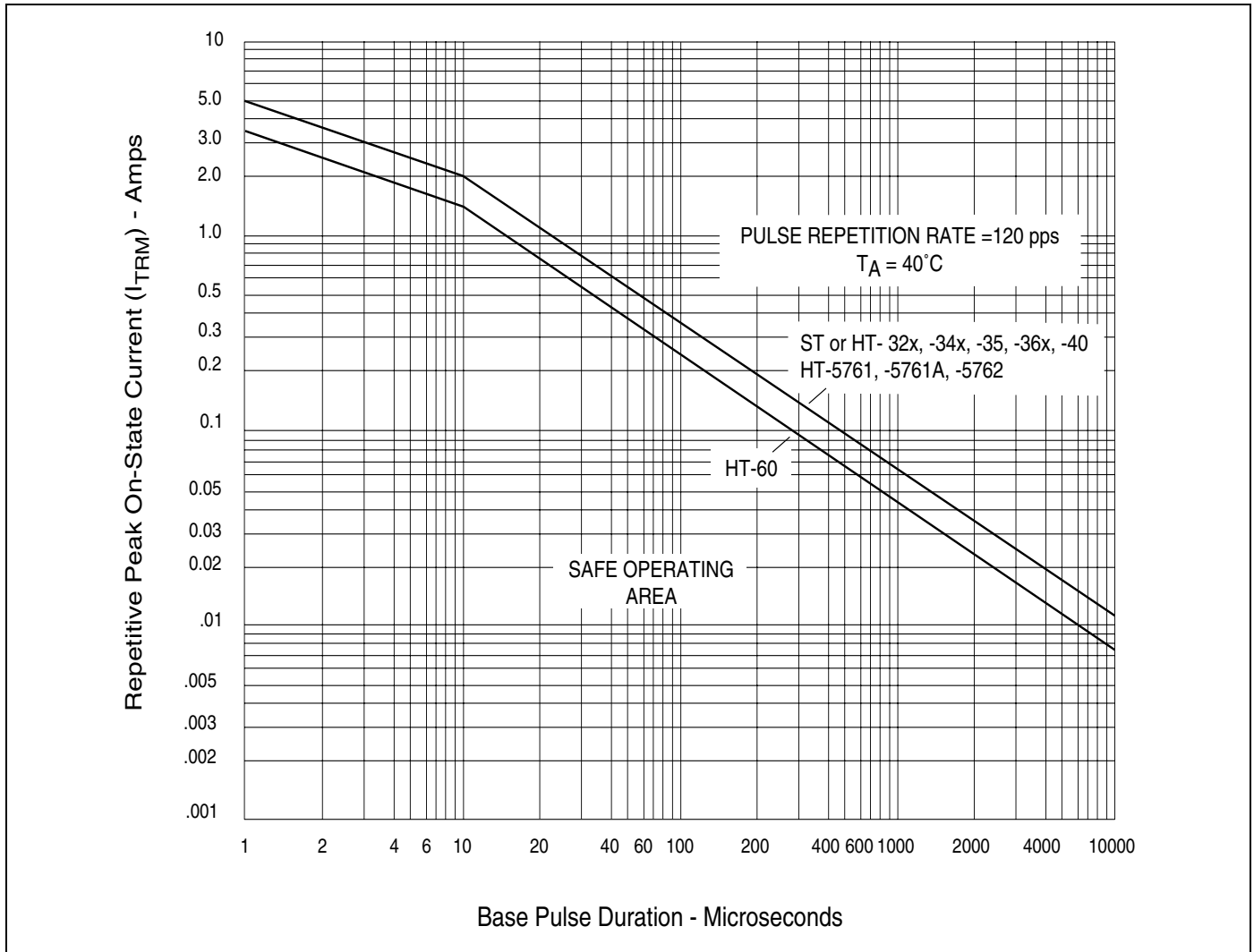


Figure 8.2 Repetitive Peak On-State Current vs Pulse Duration

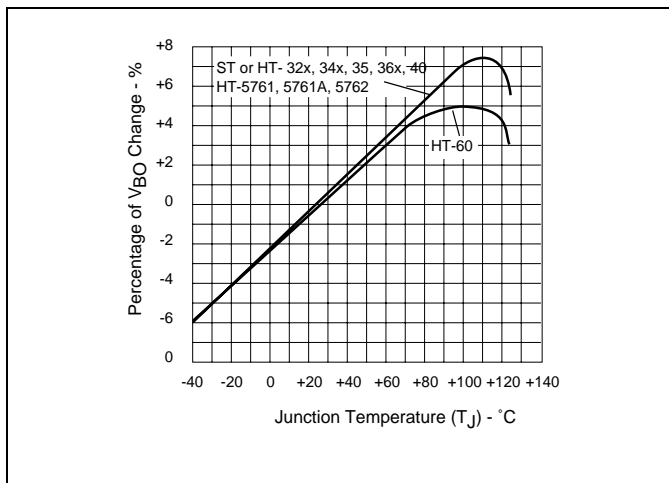


Figure 8.3 Normalized  $V_{BO}$  Change vs Junction Temperature

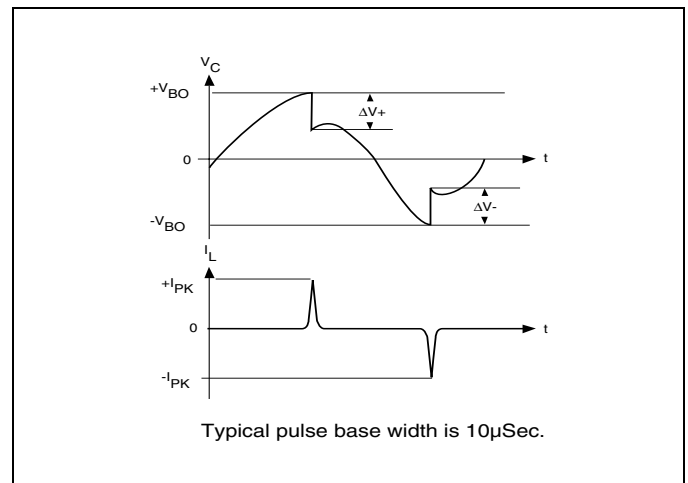


Figure 8.4 Test Circuit Waveforms (See Figure 8.5.)

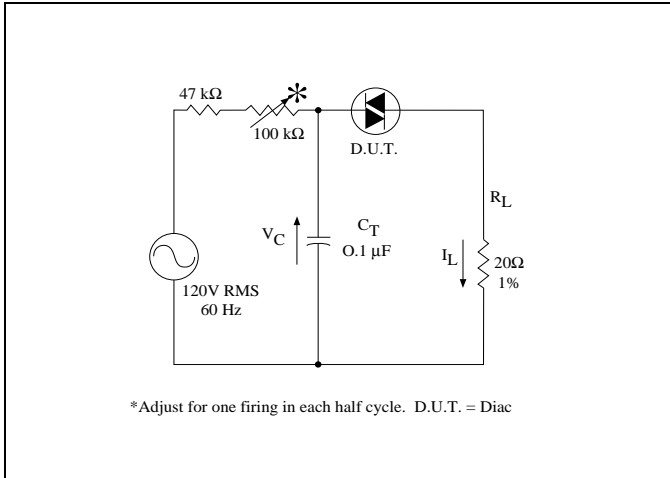


Figure 8.5 Circuit Used to Measure Diac Characteristics (See Figure 8.4.)

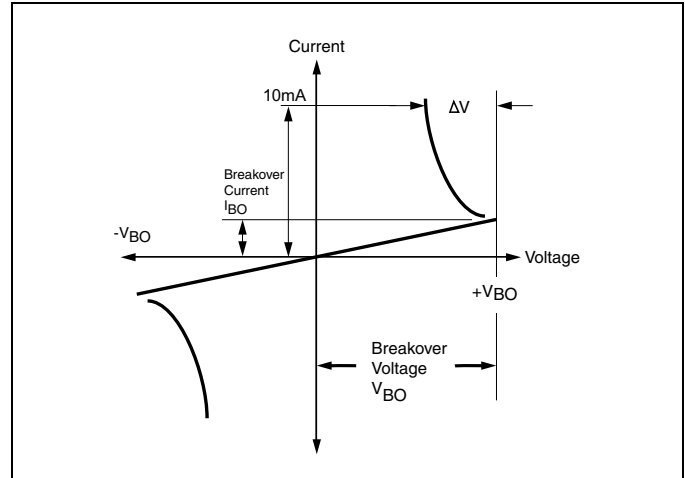


Figure 8.7 V-I Characteristics

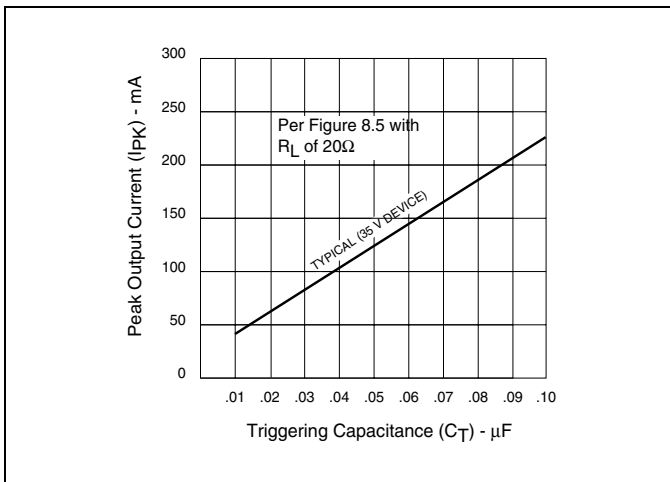


Figure 8.6 Peak Output Current vs Triggering Capacitance