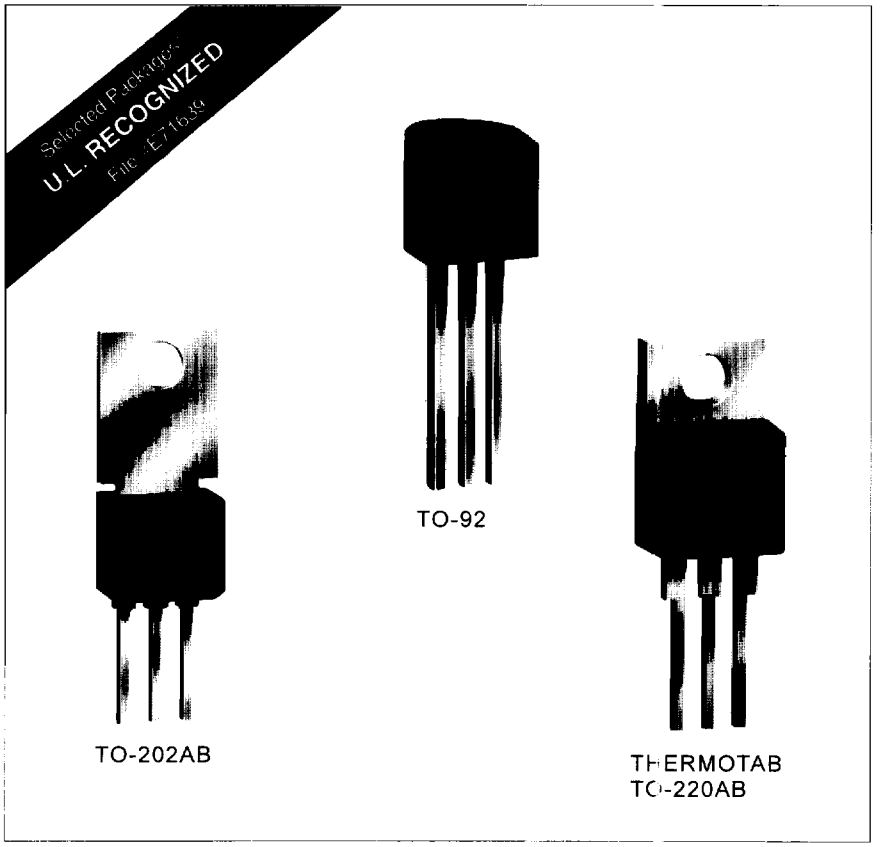

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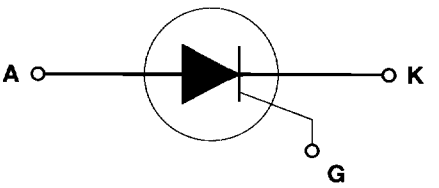


SENSITIVE SCRs

(0.8 - 10 Amps)

GENERAL DESCRIPTION

The Teccor Electronics, Inc. line of sensitive SCR semiconductors are half-wave unidirectional gate-controlled rectifiers (SCR-thyristor) which complement Teccor's line of power SCRs. This group of packages offers ratings of 0.8-10 amps, and 50-600 volts with gate sensitivities of 1.0-500 microamps. If gate currents in the 1-50 milliamp ranges are required, please consult Teccor's non-sensitive SCR technical data sheets.

ELECTRICALLY ISOLATED PACKAGES

This group of Teccor sensitive SCRs is available in a choice of three different product packages. The TO-220AB and TO-92 are electrically isolated where the case or tab is internally isolated to allow the use of low cost assembly and convenient packaging techniques.

GLASS PASSIVATION

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

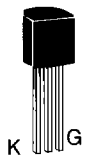
Tape-and-reel packaging is available for the TO-92 package. Please consult factory for more information.

Variations of devices covered in this data sheet are available for custom design applications. Please consult the factory for more information.

Features

- **Electrically Isolated Packages**
- **High Voltage Capability up to 600 volts**
- **High Surge Capability - up to 100 amps**
- **Glass Chip Passivation**

Electrical Specifications

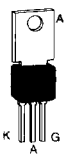
TYPE	Part Number (Isolated)	I_T		V_{DRM} & V_{RRM}	I_{GT}	I_{DRM} & I_{RRM}			V_{TM}	V_{GT}			I_H
	 TO-92	Maximum On-state Current (1) Amps RMS	Amps AV	Repetitive Peak Off-state Forward & Reverse Voltage Volts	DC Gate Trigger Current (2) (11) (17) µAmps	Peak Off-state Current at V_{DRM} & V_{RRM} (19) µAmps T_C = 25°C	T_C = 100°C	T_C = 125°C	Peak On-state Voltage T_C = 25°C (3) (10) Volts	DC Gate Trigger Voltage Volts T_C = -65°C	T_C = 25°C	T_C = 100°C	DC Holding Current Initial On-state Current = 20mAmps mAmps
	For Package Dimensions & Variations, See Page 97.	MAX		MIN	MAX	MAX			MAX	MAX		MIN	MAX
0.8 Amp	EC103A	0.8	0.51	100	200	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103B	0.8	0.51	200	200	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103C	0.8	0.51	300	200	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103D	0.8	0.51	400	200	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103E	0.8	0.51	500	200	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103M	0.8	0.51	600	200	2.0	100		1.7	1.2	0.8	.25	5.0
	EC103A1	0.8	0.51	100	12	1.0	50		1.7	1.2	0.8	0.2	5.0
	EC103B1	0.8	0.51	200	12	1.0	50		1.7	1.2	0.8	0.2	5.0
	EC103C1	0.8	0.51	300	12	1.0	50		1.7	1.2	0.8	0.2	5.0
	EC103D1	0.8	0.51	400	12	1.0	50		1.7	1.2	0.8	0.2	5.0
	EC103E1	0.8	0.51	500	12	1.0	50		1.7	1.2	0.8	0.2	5.0
	EC103M1	0.8	0.51	600	12	2.0	100		1.7	1.2	0.8	0.2	5.0
	EC103A2	0.8	0.51	100	50	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103B2	0.8	0.51	200	50	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103C2	0.8	0.51	300	50	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103D2	0.8	0.51	400	50	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103E2	0.8	0.51	500	50	1.0	50		1.7	1.2	0.8	.25	5.0
	EC103M2	0.8	0.51	600	50	2.0	100		1.7	1.2	0.8	.25	5.0
	EC103A3	0.8	0.51	100	500	1.0	50		1.7	1.2	0.8	.25	8.0
	EC103B3	0.8	0.51	200	500	1.0	50		1.7	1.2	0.8	.25	8.0
	EC103C3	0.8	0.51	300	500	1.0	50		1.7	1.2	0.8	.25	8.0
	EC103D3	0.8	0.51	400	500	1.0	50		1.7	1.2	0.8	.25	8.0
	EC103E3	0.8	0.51	500	500	1.0	50		1.7	1.2	0.8	.25	8.0
	EC103M3	0.8	0.51	600	500	2.0	100		1.7	1.2	0.8	.25	8.0
	EC113A	0.8	0.51	100	200	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113B	0.8	0.51	200	200	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113C	0.8	0.51	300	200	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113D	0.8	0.51	400	200	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113E	0.8	0.51	500	200	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113M	0.8	0.51	600	200	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113A3	0.8	0.51	100	500	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113B3	0.8	0.51	200	500	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113C3	0.8	0.51	300	500	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113D3	0.8	0.51	400	500	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113E3	0.8	0.51	500	500	2.0	100		1.7	1.2	0.8	.25	15.0
	EC113M3	0.8	0.51	600	500	2.0	100		1.7	1.2	0.8	.25	15.0
	2N5060	0.8	0.51	30	200	1.0		50	1.7	1.2	0.8	.25	5.0
	2N5061	0.8	0.51	60	200	1.0		50	1.7	1.2	0.8	.25	5.0
	2N5062	0.8	0.51	100	200	1.0		50	1.7	1.2	0.8	.25	5.0
	2N5063	0.8	0.51	150	200	1.0		50	1.7	1.2	0.8	.25	5.0
	2N5064	0.8	0.51	200	200	1.0		50	1.7	1.2	0.8	.25	5.0
	2N6564	0.8	0.51	300	200	1.0		100	1.7	1.2	0.8	.25	5.0
	2N6565	0.8	0.51	400	200	1.0		100	1.7	1.2	0.8	.25	5.0
1.5 Amps	TCR22-2	1.5	.95	50	200	1.0	50	100	1.5	1.0	0.8	.25	5.0
	TCR22-3	1.5	.95	100	200	1.0	50	100	1.5	1.0	0.8	.25	5.0
	TCR22-4	1.5	.95	200	200	1.0	50	100	1.5	1.0	0.8	.25	5.0
	TCR22-6	1.5	.95	400	200	1.0	50	100	1.5	1.0	0.8	.25	5.0
	TCR22-8	1.5	.95	600	200	2.0	100	200	1.5	1.0	0.8	.25	5.0

See General Notes and Special Numbered Notes for electrical specifications on Page 42 and 43.

I_{GM}	V_{GRM}	P_{GM}	$P_{G(AV)}$	I_{TSM}		dv/dt	di/dt	t_{gt}	t_q	I^2t
Peak Gate Current (16)	Peak Reverse Gate Voltage	Peak Gate Power Dissipation (16)	Average Gate Power Dissipation	Peak One Cycle Surge Forward Current (6) (7) (12) Amps		Critical Rate-Of-Rise Of Forward Off-State Voltage	Maximum Rate-Of-Change Of On-State Current I_{GT} = 50mA With 0.1µs Rise Time	Gate Controlled Turn-On Time Gate Pulse = 10mA Min. Width = 15µs With Rise Time ≤ 0.1 µs (8)	Circuit Commutated Turn-Off Time (9)	RMS Surge (Non-Repetitive) On-State Current For A Period Of 8.3ms For Fusing
Amps	Volts	Watts	Watts	60Hz	50Hz	Volts/µSec	Amps/µSec	µSec	µSec	$Amps^2/Sec$
	MIN					MIN		TYP	MAX	
1.0	5.0	1.0	0.1	20	16	30	50	3.5	50	1.6
1.0	5.0	1.0	0.1	20	16	30	50	3.5	50	1.6
1.0	5.0	1.0	0.1	20	16	30	50	3.5	50	1.6
1.0	5.0	1.0	0.1	20	16	30	50	3.5	50	1.6
1.0	5.0	1.0	0.1	20	16	20	50	3.5	50	1.6
1.0	5.0	1.0	0.1	20	16	15	50	3.5	50	1.6
1.0	5.0	1.0	0.1	20	16	20	50	2.0	60	1.6
1.0	5.0	1.0	0.1	20	16	20	50	2.0	60	1.6
1.0	5.0	1.0	0.1	20	16	20	50	2.0	60	1.6
1.0	5.0	1.0	0.1	20	16	20	50	2.0	60	1.6
1.0	5.0	1.0	0.1	20	16	15	50	2.0	60	1.6
1.0	5.0	1.0	0.1	20	16	10	50	2.0	60	1.6
1.0	5.0	1.0	0.1	20	16	25	50	3.0	60	1.6
1.0	5.0	1.0	0.1	20	16	25	50	3.0	60	1.6
1.0	5.0	1.0	0.1	20	16	25	50	3.0	60	1.6
1.0	5.0	1.0	0.1	20	16	25	50	3.0	60	1.6
1.0	5.0	1.0	0.1	20	16	20	50	3.0	60	1.6
1.0	5.0	1.0	0.1	20	16	10	50	3.0	60	1.6
1.0	5.0	1.0	0.1	20	16	40	50	5.0	45	1.6
1.0	5.0	1.0	0.1	20	16	40	50	5.0	45	1.6
1.0	5.0	1.0	0.1	20	16	40	50	5.0	45	1.6
1.0	5.0	1.0	0.1	20	16	40	50	5.0	45	1.6
1.0	5.0	1.0	0.1	20	16	30	50	5.0	45	1.6
1.0	5.0	1.0	0.1	20	16	20	50	5.0	45	1.6
1.0	5.0	1.0	0.1	20	16	30	50	4.0	30	1.6
1.0	5.0	1.0	0.1	20	16	30	50	4.0	30	1.6
1.0	5.0	1.0	0.1	20	16	30	50	4.0	30	1.6
1.0	5.0	1.0	0.1	20	16	30	50	4.0	30	1.6
1.0	5.0	1.0	0.1	20	16	20	50	4.0	30	1.6
1.0	5.0	1.0	0.1	20	16	15	50	4.0	30	1.6
1.0	5.0	1.0	0.1	20	16	40	50	5.0	18	1.6
1.0	5.0	1.0	0.1	20	16	40	50	5.0	18	1.6
1.0	5.0	1.0	0.1	20	16	40	50	5.0	18	1.6
1.0	5.0	1.0	0.1	20	16	40	50	5.0	18	1.6
1.0	5.0	1.0	0.1	20	16	30	50	5.0	18	1.6
1.0	5.0	1.0	0.1	20	16	20	50	5.0	18	1.6
1.0	5.0	1.0	0.1	20	16	25	50	2.2	60	1.6
1.0	5.0	1.0	0.1	20	16	25	50	2.2	60	1.6
1.0	5.0	1.0	0.1	20	16	25	50	2.2	60	1.6
1.0	5.0	1.0	0.1	20	16	25	50	2.2	60	1.6
1.0	5.0	1.0	0.1	20	16	25	50	2.2	60	1.6
1.0	6.0	1.0	0.1	20	16	25	50	2.2	60	1.6
1.0	6.0	1.0	0.1	20	16	25	50	2.2	60	1.6
1.0	6.0	1.0	0.1	20	16	75	50	3.5	50	1.6
1.0	6.0	1.0	0.1	20	16	75	50	3.5	50	1.6
1.0	6.0	1.0	0.1	20	16	60	50	3.5	50	1.6
1.0	6.0	1.0	0.1	20	16	40	50	3.5	50	1.6
1.0	6.0	1.0	0.1	20	16	30	50	3.5	50	1.6

See General Notes and Special Numbered Notes for electrical specifications on Page 42 and 43.

Electrical Specifications

TYPE	Part Number		I_T		V_{DRM} & V_{RRM}	I_{GT}	I_{DRM} & I_{RRM}			V_{TM}	V_{GT}			I_H
	Isolated	Non-Isolated	Maximum On-State Current (1)		Repetitive Peak Off-State Forward & Reverse Voltage	DC Gate Trigger Current (2) (11) (13)	Peak Off-State Current at V_{DRM} & V_{RRM} (20)			Peak On-State Voltage T_C = 25°C (3) (10)	DC Gate Trigger Voltage (4) (11) (19)			DC Holding Current Initial On-State Current = 20mA (5) (15) (18)
			Amps				µAmps				Volts			mAmps
	TO-220AB	TO-202AB	$I_{T(RMS)}$	$I_{T(AV)}$	Volts	µAmps	T_C = 25°C	T_C = 100°C	T_C = 110°C	Volts	T_C = -40°C	T_C = 25°C	T_C = 110°C	T_C = 25°C
	For Package Dimensions & Variations, see Page 95.		MAX	MAX	MIN	MAX	MAX	MAX	MAX	MAX	MAX	MAX	MIN	MAX
3.0 Amps	**S0503LS1**		3.0	1.9	50	50	1.0	50	100	1.6	1.0	0.8	.25	6.0
	S0503LS2		3.0	1.9	50	200	1.0	50	100	1.6	1.0	0.8	.25	6.0
	S0503LS3		3.0	1.9	50	500	1.0	50	100	1.6	1.0	0.8	.25	8.0
	S1003LS1		3.0	1.9	100	50	1.0	50	100	1.6	1.0	0.8	.25	6.0
	S1003LS2		3.0	1.9	100	200	1.0	50	100	1.6	1.0	0.8	.25	6.0
	S1003LS3		3.0	1.9	100	500	1.0	50	100	1.6	1.0	0.8	.25	8.0
	S2003LS1		3.0	1.9	200	50	1.0	50	100	1.6	1.0	0.8	.25	6.0
	S2003LS2		3.0	1.9	200	200	1.0	50	100	1.6	1.0	0.8	.25	6.0
	S2003LS3		3.0	1.9	200	500	1.0	50	100	1.6	1.0	0.8	.25	8.0
	S4003LS1		3.0	1.9	400	50	1.0	50	100	1.6	1.0	0.8	.25	6.0
	S4003LS2		3.0	1.9	400	200	1.0	50	100	1.6	1.0	0.8	.25	6.0
	S4003LS3		3.0	1.9	400	500	1.0	50	100	1.6	1.0	0.8	.25	8.0
	S6003LS1		3.0	1.9	600	50	2.0	100	200	1.6	1.0	0.8	.25	6.0
	S6003LS2		3.0	1.9	600	200	2.0	100	200	1.6	1.0	0.8	.25	6.0
	S6003LS3		3.0	1.9	600	500	2.0	100	200	1.6	1.0	0.8	.25	8.0
4.0 Amps		**T106F1**	4.0	2.5	50	200	2.0		100	2.2	1.0	0.8		5.0
		T106A1	4.0	2.5	100	200	2.0		100	2.2	1.0	0.8		5.0
		T106B1	4.0	2.5	200	200	2.0		100	2.2	1.0	0.8		5.0
		T106C1	4.0	2.5	300	200	2.0		100	2.2	1.0	0.8		5.0
		T106D1	4.0	2.5	400	200	2.0		100	2.2	1.0	0.8		5.0
		T106E1	4.0	2.5	500	200	2.0		100	2.2	1.0	0.8		5.0
		T106M1	4.0	2.5	600	200	2.0		100	2.2	1.0	0.8		5.0
		T107F1	4.0	2.5	50	500	2.0		100	2.5	1.0	0.8		6.0
		T107A1	4.0	2.5	100	500	2.0		100	2.5	1.0	0.8		6.0
		T107B1	4.0	2.5	200	500	2.0		100	2.5	1.0	0.8		6.0
		T107C1	4.0	2.5	300	500	2.0		100	2.5	1.0	0.8		6.0
		T107D1	4.0	2.5	400	500	2.0		100	2.5	1.0	0.8		6.0
		T107E1	4.0	2.5	500	500	2.0		100	2.5	1.0	0.8		6.0
		T107M1	4.0	2.5	600	500	2.0		100	2.5	1.0	0.8		6.0

GENERAL NOTES

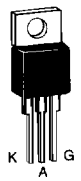
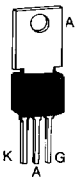
- The case temperature (T_C) is measured as shown on dimensional outline drawings. See "Package Dimensions" section of this catalog on Page 95.
- All measurements (except I_{GT}) are made with an external resistor R_{GK} = 1kΩ unless otherwise noted.
- All measurements are made at 60Hz with a resistive load at an ambient temperature of +25°C unless otherwise specified.
- Operating temperature (T_J) is -65°C to + 110°C for "EC" Series devices; -65°C to +125°C for "2N" Series devices; and -40°C to +110°C for all others.
- Storage temperature range (T_S) is -65°C to + 150°C for TO-92 devices; -40°C to +150°C for TO-202 devices; and -40°C to +125°C for all others.
- Lead solder temperature is a maximum of +230°C for 10 seconds maximum ≥ 1/16" (1.59mm) from case.

I_{GM}	V_{GRM}	P_{GM}	$P_{G(AV)}$	I_{TSM}		dv/dt	di/dt	t_{gt}	t_q	I^2t
Peak Gate Current (16)	Peak Reverse Gate Voltage	Peak Gate Power Dissipation (16)	Average Gate Power Dissipation	Peak One Cycle Surge Forward Current (6) (7) (12) Amps		Critical Rate-Of-Rise Of Forward Off-State Voltage Volts/µSec	Maximum Rate-Of-Change Of On-State Current I_{GT} = 50mA with 0.1µs Rise Time	Gate Controlled Turn-On Time Gate Pulse = 10mA Min. Width = 15µs with Rise Time ≤ 0.1 µs (8)	Circuit Commutated Turn-Off Time (9)	RMS Surge (Non-Repetitive) On-State Current For A Period Of 8.3 msec for Fusing
Amps	Volts	Watts	Watts	60Hz	50Hz	T_C = 110°C	Amps/µSec	µSec	µSec	$Amps^2Sec$
	MIN					TYP		TYP	MAX	
1.0	6.0	1.0	0.1	30	25	15	50	3.0	60	3.7
1.0	6.0	1.0	0.1	30	25	20	50	4.0	50	3.7
1.0	6.0	1.0	0.1	30	25	20	50	5.0	45	3.7
1.0	6.0	1.0	0.1	30	25	7	50	3.0	60	3.7
1.0	6.0	1.0	0.1	30	25	10	50	4.0	50	3.7
1.0	6.0	1.0	0.1	30	25	10	50	5.0	45	3.7
1.0	6.0	1.0	0.1	30	25	7	50	3.0	60	3.7
1.0	6.0	1.0	0.1	30	25	10	50	4.0	50	3.7
1.0	6.0	1.0	0.1	30	25	10	50	5.0	45	3.7
1.0	6.0	1.0	0.1	30	25	4	50	3.0	60	3.7
1.0	6.0	1.0	0.1	30	25	5	50	4.0	50	3.7
1.0	6.0	1.0	0.1	30	25	5	50	5.0	45	3.7
1.0	6.0	1.0	0.1	30	25	4	50	3.0	60	3.7
1.0	6.0	1.0	0.1	30	25	5	50	4.0	50	3.7
1.0	6.0	1.0	0.1	30	25	5	50	5.0	45	3.7
1.0	6.0	1.0	0.1	20	16	8	50	4.0	50	1.6
1.0	6.0	1.0	0.1	20	16	8	50	4.0	50	1.6
1.0	6.0	1.0	0.1	20	16	8	50	4.0	50	1.6
1.0	6.0	1.0	0.1	20	16	8	50	4.0	50	1.6
1.0	6.0	1.0	0.1	20	16	8	50	4.0	50	1.6
1.0	6.0	1.0	0.1	20	16	8	50	4.0	50	1.6
1.0	6.0	1.0	0.1	20	16	8	50	4.0	50	1.6
1.0	6.0	1.0	0.1	20	16	8	50	5.0	45	1.6
1.0	6.0	1.0	0.1	20	16	8	50	5.0	45	1.6
1.0	6.0	1.0	0.1	20	16	8	50	5.0	45	1.6
1.0	6.0	1.0	0.1	20	16	8	50	5.0	45	1.6
1.0	6.0	1.0	0.1	20	16	8	50	5.0	45	1.6
1.0	6.0	1.0	0.1	20	16	8	50	5.0	45	1.6
1.0	6.0	1.0	0.1	20	16	8	50	5.0	45	1.6

NOTES TO ELECTRICAL SPECIFICATIONS

1. See Figures 1 thru 5 for current ratings at specified operating case temperatures.
2. See Figure 6 for I_{GT} vs T_C.
3. See Figure 7 for instantaneous on-state current (i_T) vs on-state voltage V_T) - (typical).
4. See Figure 8 for V_{GT} vs T_C.
5. See Figure 9 for I_H vs T_C.
6. For more than one full cycle, see Figure 10.
7. 0.8 - 4.0A devices also have a pulse peak forward current on-state rating (repetitive) of 75A. This rating applies for operation at 60Hz, 75°C maximum tab (or anode) lead temperature, switching from 80V peak, sinusoidal current pulse width of 10µs minimum, 15µs maximum. See Figures 16 & 17.
8. See Figure 11 for t_{gt} vs I_{GT}.
9. Test Conditions as Follows:
   $T_C \leq 80°C$, rectangular current waveform; rate-of-rise of current ≤ 10A/µs. Rate-of-reversal of current ≤ 5A/µs. I_{TM} = 1A (50µs Pulse) Repetition Rate = 60pps. V_{RRM} = Rated. V_R = 15V minimum, V_{DRM} = Rated rate-of-rise reapplied forward blocking voltage = 5V/µs. Gate Bias = 0V, 100Ω (during turn-off time interval).
10. Test condition is maximum rated RMS current except TO-92 devices are $1.2A_{PK}$; T106/T107 devices are $4A_{PK}$.
11. V_D = 6VDC, R_L = 100Ω. See Figure 15 for simple test circuit for measuring gate trigger voltage and gate trigger current.
12. See Figures 1 thru 5 for maximum allowable case temperature at maximum rated current.
13. I_{GT} = 500µA maximum for T_C = -40°C for T106 devices.
14. I_H = 10mA maximum for T_C = -65°C for 2N5060 Series and 2N6564 Series devices.
15. I_H = 6mA maximum for T_C = -40°C for T106 devices.
16. Pulse Width ≤ 10µs.
17. I_{GT} = 350µA maximum at T_C = -65°C for 2N5060 Series and 2N6564 Series devices.
18. Latching current can be higher than 20mA for higher I_{CT} types. Also latching current can be much higher at -40°C. See Figure 14.
19. V_{GT} = 0.2V minimum at T_C = 110°C for T106 and T107 devices.
20. T_C = T_J for test conditions in off-state.

Electrical Specifications

TYPE	Part Number		I_T		V_{DRM} & V_{RRM}	I_{GT}	I_{DRM} & I_{RRM}		V_{TM}	V_{GT}			I_H
	Isolated	Non-Isolated	Maximum On-State Current (1)		Repetitive Peak Off-State Forward & Reverse Voltage	DC Gate Trigger Current (2) (11)	Peak Off-State Current at V_{DRM} & V_{RRM} (18)		Peak On-State Voltage T_C = 25°C (3) (10)	DC Gate Trigger Voltage (4) (11)			DC Holding Current Initial On-State Current = 20mA (5) (17)
			Amps				mAmps			Volts			
	TO-220AB	TO-202AB	$I_{T(RMS)}$	$I_{T(AV)}$	Volts	µAmps	T_C = 25°C	T_C = 110°C	Volts	T_C = -40°C	T_C = 25°C	T_C = 110°C	mAmps
	For Package Dimensions & Variations, see Page 95		MAX	MAX	MIN	MAX	MAX	MAX	MAX	MAX	MAX	MIN	MAX
6.0 Amps	**S0506LS2**	**S0506FS21**	**6.0**	**3.8**	**50**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S0506LS3	**S0506FS31**	**6.0**	**3.8**	**50**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**8.0**
	S1006LS2	**S1006FS21**	**6.0**	**3.8**	**100**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S1006LS3	**S1006FS31**	**6.0**	**3.8**	**100**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**8.0**
	S2006LS2	**S2006FS21**	**6.0**	**3.8**	**200**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S2006LS3	**S2006FS31**	**6.0**	**3.8**	**200**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**8.0**
	S4006LS2	**S4006FS21**	**6.0**	**3.8**	**400**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S4006LS3	**S4006FS31**	**6.0**	**3.8**	**400**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**8.0**
	S6006LS2	**S6006FS21**	**6.0**	**3.8**	**600**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S6006LS3	**S6006FS31**	**6.0**	**3.8**	**600**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**8.0**
8.0 Amps	S0508LS2	S0508FS21	8.0	5.1	50	200	.005	0.25	1.6	1.0	0.8	.25	6.0
	S0508LS3	S0508FS31	8.0	5.1	50	500	.005	0.25	1.6	1.0	0.8	.25	8.0
	S1008LS2	S1008FS21	8.0	5.1	100	200	.005	0.25	1.6	1.0	0.8	.25	6.0
	S1008LS3	S1008FS31	8.0	5.1	100	500	.005	0.25	1.6	1.0	0.8	.25	8.0
	S2008LS2	S2008FS21	8.0	5.1	200	200	.005	0.25	1.6	1.0	0.8	.25	6.0
	S2008LS3	S2008FS31	8.0	5.1	200	500	.005	0.25	1.6	1.0	0.8	.25	8.0
	S4008LS2	S4008FS21	8.0	5.1	400	200	.005	0.25	1.6	1.0	0.8	.25	6.0
	S4008LS3	S4008FS31	8.0	5.1	400	500	.005	0.25	1.6	1.0	0.8	.25	8.0
	S6008LS2	S6008FS21	8.0	5.1	600	200	.005	0.25	1.6	1.0	0.8	.25	6.0
	S6008LS3	S6008FS31	8.0	5.1	600	500	.005	0.25	1.6	1.0	0.8	.25	8.0
10.0 Amps	**S0510LS2**	**S0510FS21**	**10.0**	**6.4**	**50**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S0510LS3	**S0510FS31**	**10.0**	**6.4**	**50**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**8.0**
	S1010LS2	**S1010FS21**	**10.0**	**6.4**	**100**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S1010LS3	**S1010FS31**	**10.0**	**6.4**	**100**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**8.0**
	S2010LS2	**S2010FS21**	**10.0**	**6.4**	**200**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S2010LS3	**S2010FS31**	**10.0**	**6.4**	**200**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**8.0**
	S4010LS2	**S4010FS21**	**10.0**	**6.4**	**400**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S4010LS3	**S4010FS31**	**10.0**	**6.4**	**400**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.26**	**8.0**
	S6010LS2	**S6010FS21**	**10.0**	**6.4**	**600**	**200**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**6.0**
	S6010LS3	**S6010FS31**	**10.0**	**6.4**	**600**	**500**	**.005**	**0.25**	**1.6**	**1.0**	**0.8**	**.25**	**8.0**

GENERAL NOTES

- Teccor 2N5060 and 2N6564 Series devices conform to all JEDEC registered data.
- The case temperature (T_C) is measured as shown on dimensional outline drawings. See "Package Dimensions" section of this catalog on Page 95.
- All measurements (except I_{GT}) are made with an external resistor R_{GK} = 1kΩ unless otherwise noted.
- All measurements are made at 60Hz with a resistive load at an ambient temperature of +25°C unless otherwise specified.
- Operating temperature (T_J) is -65°C to +110°C for "EC" Series devices -65°C to +125°C for "2N" Series devices; and -40°C to +110°C for all others.
- Storage temperature range (T_S) is -65°C to +150°C for TO-92 devices; -40°C to +150°C for TO-202 devices; and -40°C to +125°C for all others.
- Lead solder temperature is a maximum of +230°C for 10 seconds maximum ≥ 1/16" (1.59mm) from case.

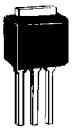
I_{GM}	V_{GRM}	P_{GM}	$P_{G(AV)}$	I_{TSM}		dv/dt	di/dt	t_{gt}	t_q	I^2t
Peak Gate Current (16)	Peak Reverse Gate Voltage	Peak Gate Power Dissipation (16)	Average Gate Power Dissipation	Peak One Cycle Surge Forward Current (6) (7) (12		Critical Rate-Of-Rise Of Forward Off-State Voltage Volts/µSec T_C = 110°C	Maximum Rate-Of-Change Of On-State Current I_{GT} = 50mA With 0.1 µs Rise Time	Gate Controlled Turn-On Time Gate Pulse = 10mA Min. Width = 15µs With Rise Time ≤ 0.1 µs (8)	Circuit Commutated Turn-Off Time (9)	RMS Surge (Non-Repetitive) On-State Current For A Period Of 8.3 mSec For Fusing
Amps	Volts	Watts	Watts	Amps			Amps/ µSec	µSec	µSec	$Amps^2Sec$
	MIN					TYP		TYP	MAX	
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**20**	**100**	**4.0**	**50**	**41**
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**20**	**100**	**5.0**	**45**	**41**
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**10**	**100**	**4.0**	**50**	**41**
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**10**	**100**	**5.0**	**45**	**41**
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**10**	**100**	**4.0**	**50**	**41**
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**10**	**100**	**5.0**	**45**	**41**
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**5**	**100**	**4.0**	**50**	**41**
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**5**	**100**	**5.0**	**45**	**41**
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**5**	**100**	**4.0**	**50**	**41**
1.0	**6.0**	**1.0**	**0.1**	**100**	**83**	**5**	**100**	**5.0**	**45**	**41**
1.0	6.0	1.0	0.1	100	83	20	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	20	100	5.0	45	41
1.0	6.0	1.0	0.1	100	83	10	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	10	100	5.0	45	41
1.0	6.0	1.0	0.1	100	83	10	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	10	100	5.0	45	41
1.0	6.0	1.0	0.1	100	83	5	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	5	100	5.0	45	41
1.0	6.0	1.0	0.1	100	83	5	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	5	100	5.0	45	41
1.0	6.0	1.0	0.1	100	83	20	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	20	100	5.0	45	41
1.0	6.0	1.0	0.1	100	83	10	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	10	100	5.0	45	41
1.0	6.0	1.0	0.1	100	83	10	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	10	100	5.0	45	41
1.0	6.0	1.0	0.1	100	83	5	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	5	100	5.0	45	41
1.0	6.0	1.0	0.1	100	83	5	100	4.0	50	41
1.0	6.0	1.0	0.1	100	83	5	100	5.0	45	41

NOTES TO ELECTRICAL SPECIFICATIONS

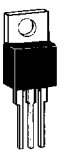
1. See Figures 1 thru 5 for current ratings at specified operating case temperatures.
2. See Figure 6 for I_{GT} vs T_C.
3. See Figure 7 for instantaneous on-state current (i_T) vs on-state voltage V_T) - (typical).
4. See Figure 8 for V_{GT} vs T_C.
5. See Figure 9 for I_H vs T_C.
6. For more than one full cycle, see Figure 10.
7. 0.8 - 4.0A devices also have a pulse peak forward current on-state rating (repetitive) of 75A. This rating applies for operation at 60Hz 75°C maximum tab (or anode) lead temperature, switching from 80V peak, sinusoidal current pulse width of 10µs minimum, 15µs maximum. See Figures 16 & 17.
8. See Figure 11 for t_{gt} vs I_{GT}.
9. Test Conditions as Follows:
   $T_C \leq 80°C$, rectangular current waveform; rate-of-rise of current ≤ 10A/µs. Rate-of-reversal of current ≤ 5A/µs. I_{TM} = 1A (50µs Pulse) Repetition Rate = 60pps. V_{RRM} = Rated. V_R = 15V minimum, V_{DRM} = Rated rate-of-rise reapplied forward blocking voltage= 5V/µs. Gate Bias = 0V, 100Ω (during turn-off time interval).
10. Test condition is maximum rated RMS current except TO-92 devices are $1.2A_{PK}$; T106/T107 devices are $4A_{PK}$.
11. V_D = 6VDC, R_L = 100Ω. See Figure 15 for simple test circuit for measuring gate trigger voltage and gate trigger current.
12. See Figures 1 thru 5 for maximum allowable case temperature at maximum rated current.
13. I_{GT} = 500µA maximum for T_C = -40°C for T106 devices.
14. I_H = 10mA maximum for T_C = -65°C for 2N5060 Series and 2N6564 Series devices.
15. I_H = 6mA maximum for T_C = -40°C for T106 devices.
16. Pulse Width ≤ 10µs.
17. Latching current can be higher than 20mA for higher I_{GT} types. Also latching current can be much higher at -40°C. See Figure 14.
18. $T_C = T_J$ for test conditions in off-state.

Electrical Specifications

THERMAL RESISTANCE (STEADY STATE)
$R_{\theta JC}$ [$R_{\theta JA}$] °C/W (TYPICAL)

	 TO-92	 THERMOTAB TO-220AB	 TYPE 2 TO-202AB	 TYPE 1 & 3 TO-202AB
0.8 amp	**75 [160]**			
1.5 amps	**50 [160]**			
3.0 amps		**6 [65]**		
4.0 amps			**10 [100]**	**6.2 [80]**
6.0 amps		**4.0**		**4.3**
8.0 amps		**3.4**		**3.9**
10.0 amps		**3.0**		**3.4**

ELECTRICAL ISOLATION FROM LEADS TO MOUNTING TAB

TYPE / VAC(RMS)	 TO-92	 THERMOTAB ** TO-220AB
1600	**STANDARD**	—
2500	**N/A**	**STANDARD**
4000	**N/A**	**OPTIONAL***

* For 4000V Isolation use "V" Suffix in part number
** UL Recognized File #E71639

ELECTRICAL ISOLATION

Most Teccor isolated sensitive SCRs will withstand a minimum high potential test of 2500 VAC RMS from leads to mounting tab over the device's operating temperature range. See table for other standard and optional isolation ratings.

Figure 1A — Maximum Allowable Case Temperature vs RMS On-State Current

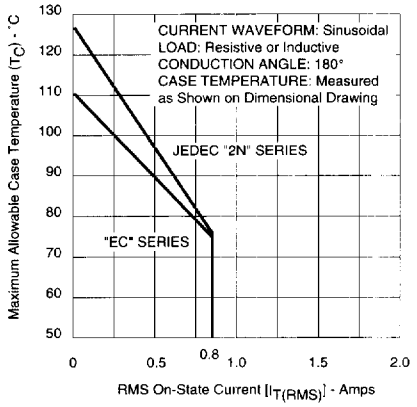


Figure 1B — Maximum Allowable Case Temperature vs RMS On-State Current

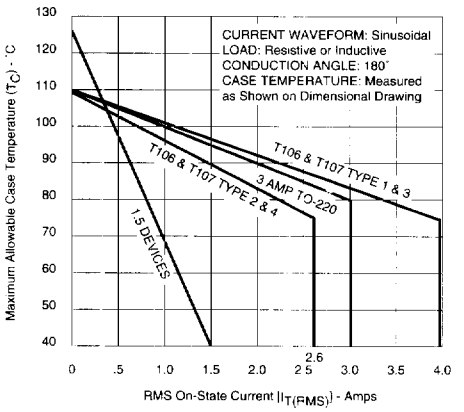


Figure 2A — Maximum Allowable Case Temperature vs Average On-State Current

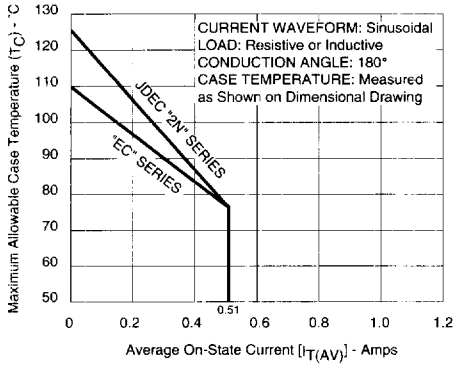


Figure 2B — Maximum Allowable Case Temperature vs Average On-State Current

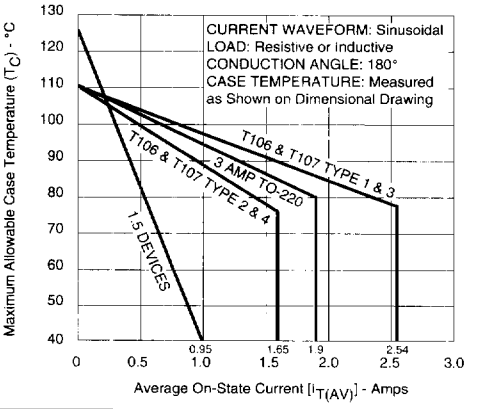


Figure 3A — Maximum Allowable Ambient Temperature vs On-State Current

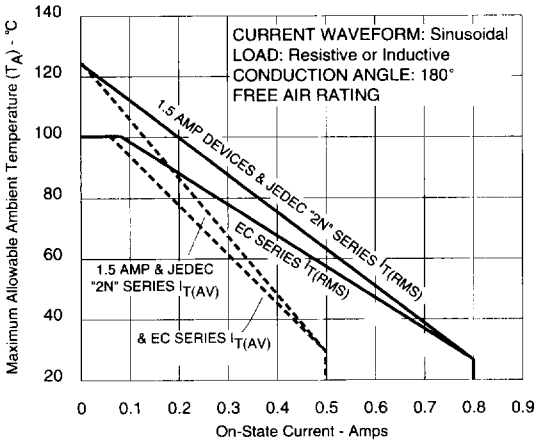


Figure 3B — Maximum Allowable Ambient Temperature vs On-State Current

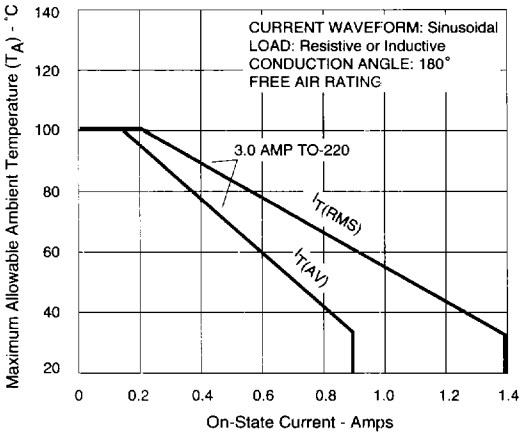


Figure 3C — Maximum Allowable Ambient Temperature vs RMS On-State Current

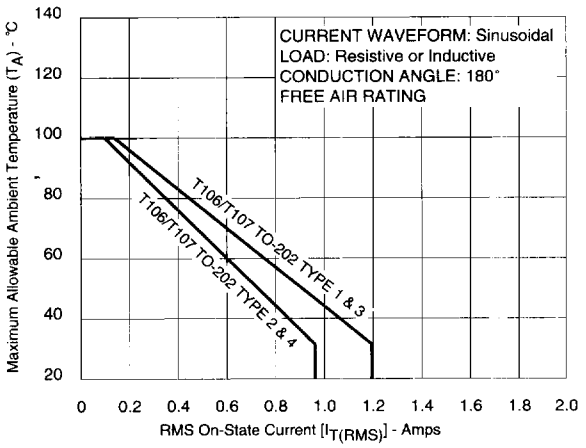


Figure 3D — Maximum Allowable Ambient Temperature vs RMS On-State Current

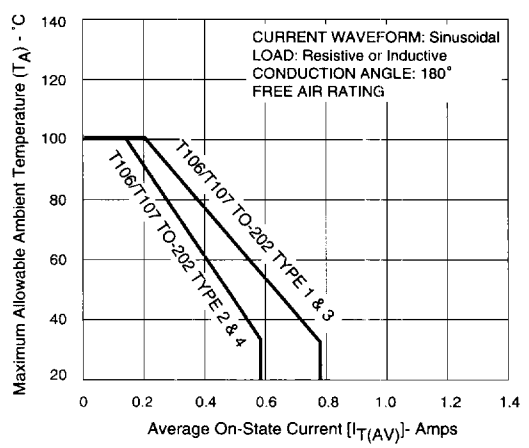


Figure 4 — Maximum Allowable Case Temperature vs RMS On-State Current

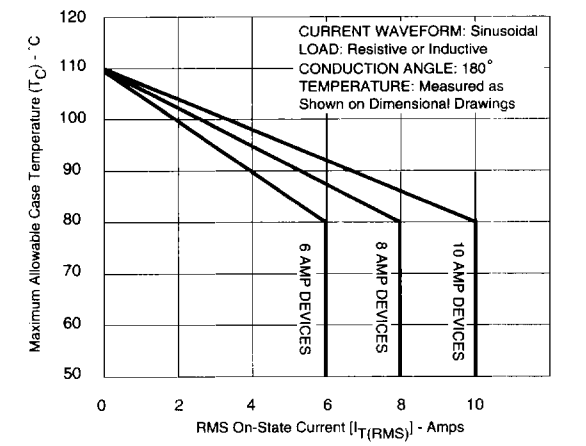
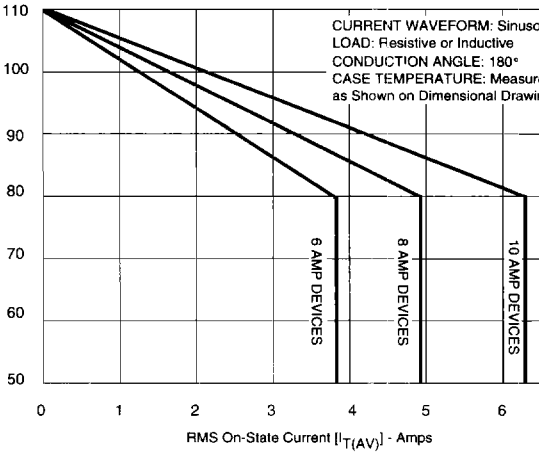


Figure 5 — Maximum Allowable Case Temperature vs Average On-State Current



Electrical Specifications

Figure 6 — Normalized DC Gate-Trigger Current vs Case Temperature

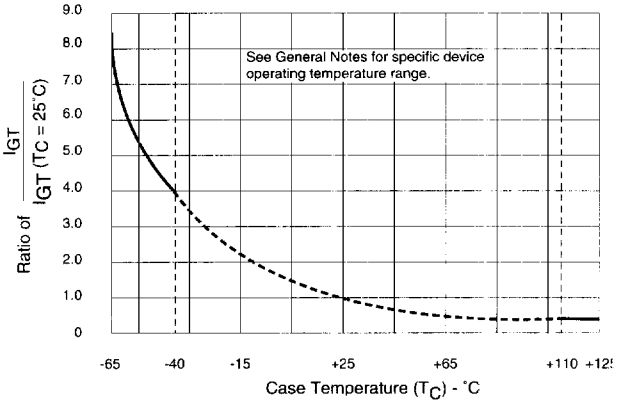


Figure 7 — Instantaneous On-State Current vs On-State Voltage (Typical)

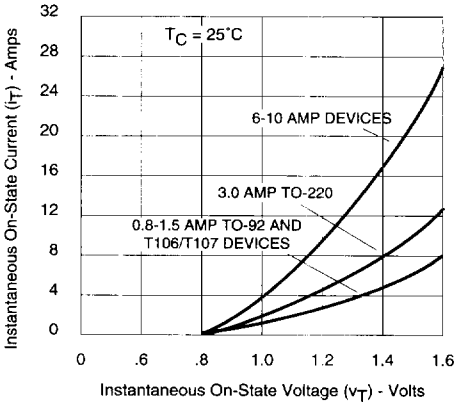


Figure 8 — Normalized DC Gate-Trigger Voltage vs Case Temperature

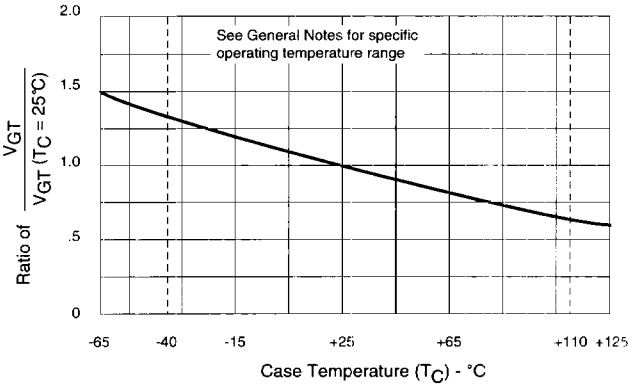


Figure 9 — Normalized DC Holding Current vs Case Temperature

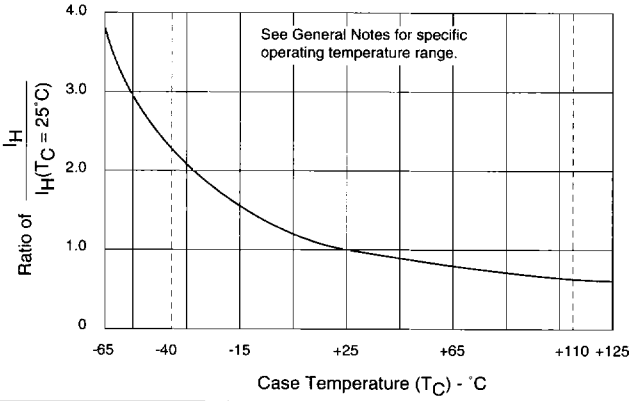


Figure 10 — Peak Surge On-State Current vs Surge Current Duration

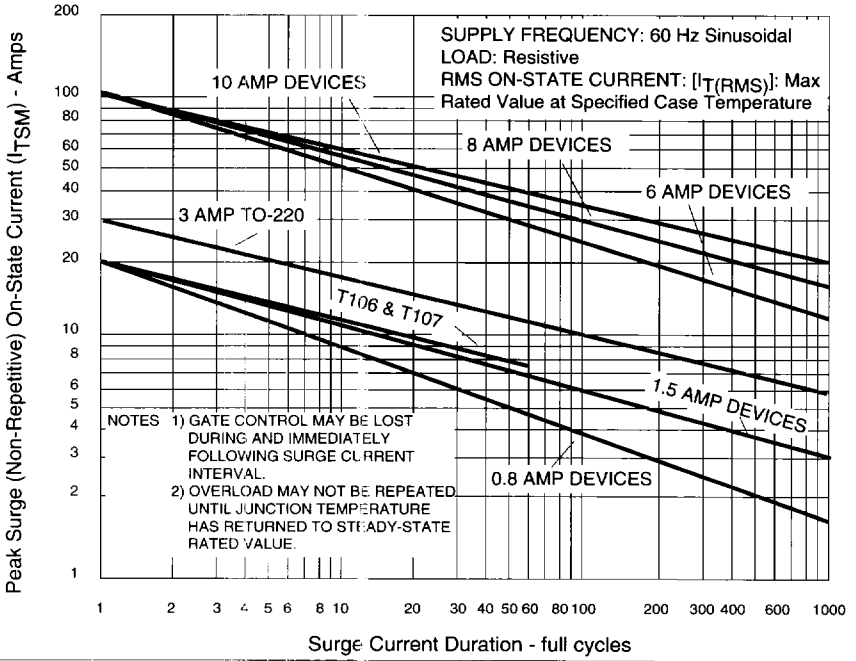


Figure 11 — Typical Turn-On Time vs Gate Trigger Current

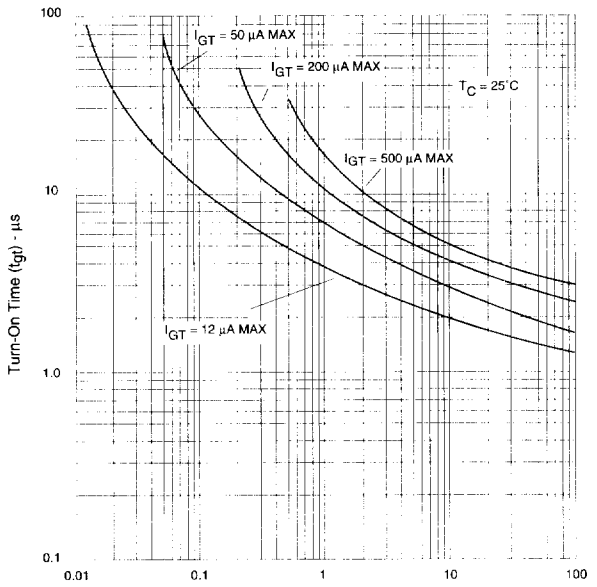


Figure 12 — Power Dissipation (Typical) vs RMS On-State Current

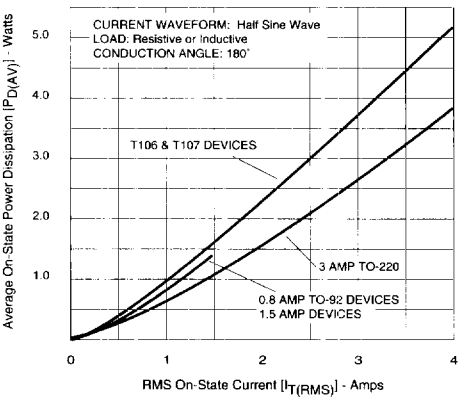


Figure 13 — Power Dissipation (Typical) vs RMS On-State Current

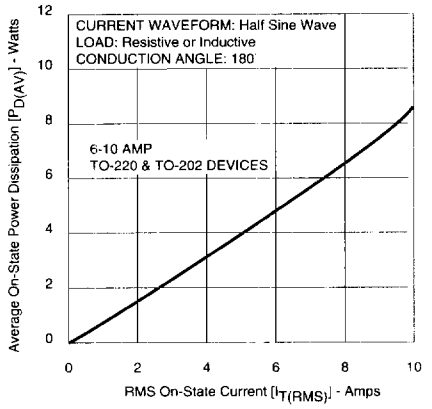


Figure 14 — Normalized DC Latching Current vs Case Temperature

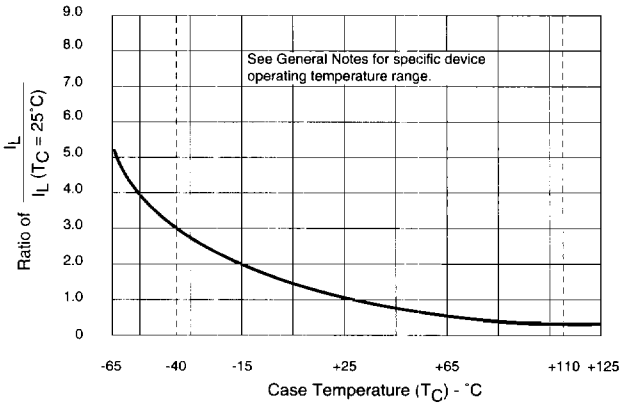
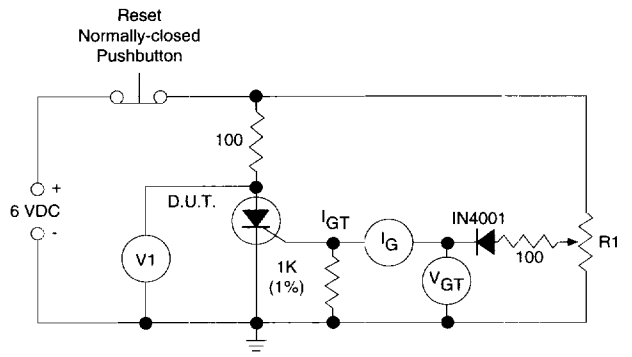


Figure 15 — Simple Test Circuit For Gate Trigger Voltage and Current Measurement



NOTE:

V1 — 0 - 10 volt DC meter
V_{GT} — 0 - 1 volt DC meter
I_G — 0 - 1mA DC milliameter
R1 — 1K potentiometer

To measure gate trigger voltage and current, raise gate voltage (V_{GT}) until meter reading V1 drops from 6 volts to 1 volt. Gate trigger voltage is the reading on V_{GT} just prior to V1 dropping. Gate trigger current I_{GT} can be computed from the relationship:

$$I_{GT} = I_G - \frac{V_{GT}}{1000} \quad \text{Amps}$$

where I_G is reading (in amps) on meter just prior to V1 dropping.

Note: I_{GT} may turn out to be a negative quantity (trigger current flows out from gate lead).

Figure 16 — Peak Repetitive Capacitor Discharge Current

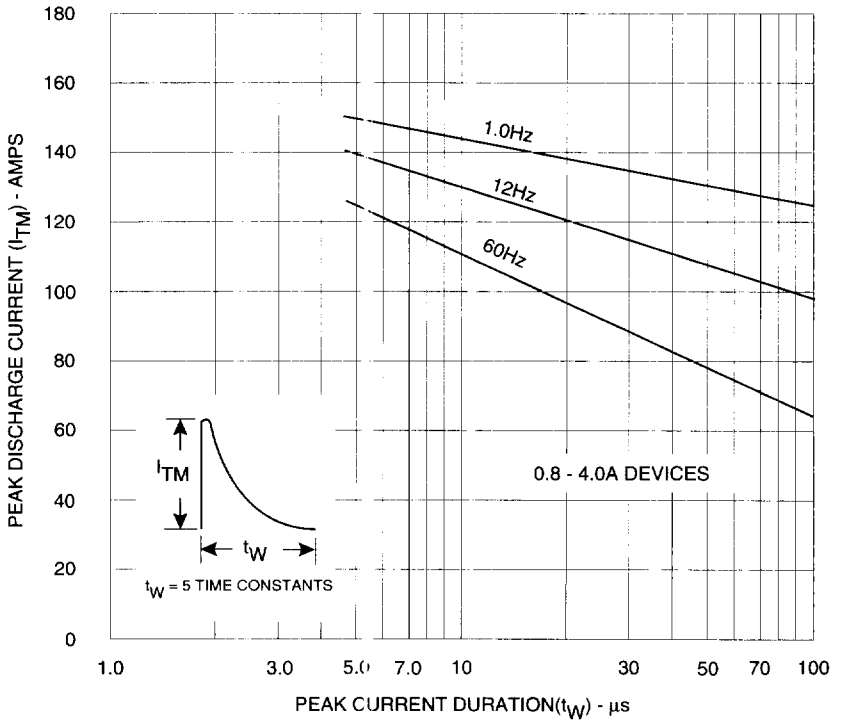


Figure 17 — Peak Repetitive Sinusoidal Curve