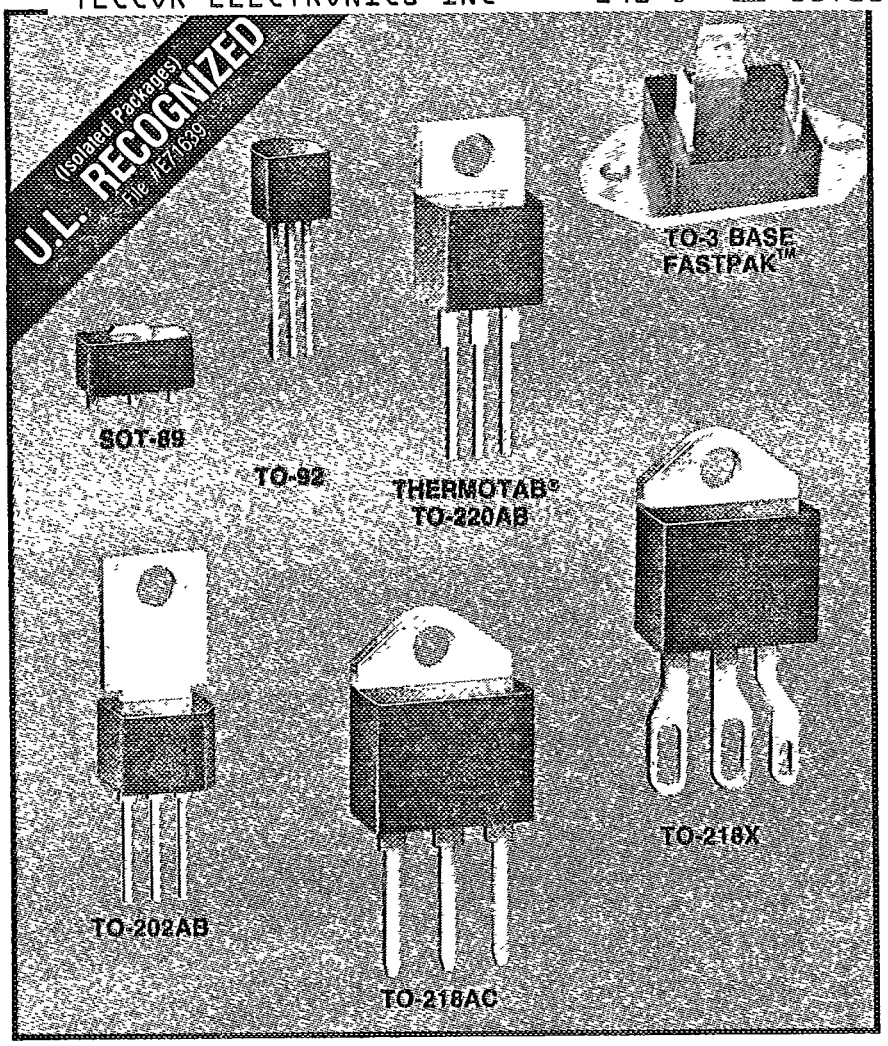
T-25-15



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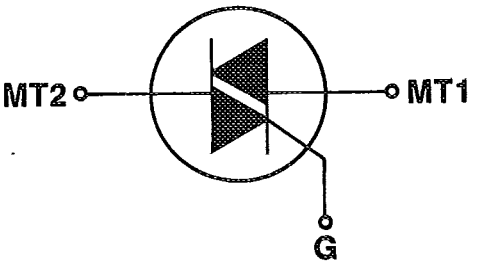


GATED TRIACS 1-40 AMPS

General Description

These gated triacs from Teccor Electronics are part of a broad line of bidirectional semiconductors. The devices range in current ratings from 1 to 40 Amperes, and in voltage from 200 to 800 Volts.

The triac may be gate triggered from a blocking to conduction state for either polarity of applied voltage and is designed for AC switching and phase control applications such as speed and temperature modulation controls, lighting controls and static switching relays. The triggering signal is normally applied between the gate and MT1.

Teccor's gated triacs are available in a choice of different packages as shown above. Most packages are offered in the electrically isolated construction where the case or tab is electrically isolated from the semiconductor chip. This feature facilitates the use of low cost assembly and convenient packaging techniques. Tape and reel capability is available for the SOT-89 and TO-92 packages.

Teccor's new TO-218X package has been designed especially for steady state power handling capability. The TO-218X features large eyelet terminals for ease of soldering heavy gauge hook-up wire.

All Teccor triacs have glass passivated junctions to insure long term device reliability and parameter stability. Teccor's glass offers a rugged reliable barrier against junction contamination.

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

FEATURES:

- **Electrically isolated packages**
- **Glass passivated junctions**
- **Voltage capability — up to 800 Volts**
- **Surge capability — up to 400 Amps**

GATED TRIACS 1-40 AMPS

I_{TRMS}	Part Number					V_{DRM}	I_{GT}					I_{DRM}			V_{TM}	V_{GT}	
	Isolated		Non-Isolated				DC Gate Trigger Current in Specific Operating Quadrants V_D = 12 VDC R_L = 60 Ω (3) (7)					Peak Off-State Current Gate Open V_{DRM} = Max Rated Value (1)			Peak On-State Voltage at Max Rated RMS Current T_C = 25°C (1) (5)	DC Gate Trigger Voltage V_D = 12VDC R_L = 60 Ω (2) (6)	
RMS On-State Current Conduction Angle of 360° (4)						Repetitive Peak Blocking Voltage (1)											
Amps	TO-92	THERMOTAB TO-220AB	SOT-89	TO-202AB	NON-ISOLATED TO-220AB	Volts	mA					MAX			Volts	Volts	
MAX	FOR PACKAGE DIMENSIONS & VARIATIONS SEE PAGE 81					MIN	QI MAX	QII MAX	QIII MAX	QIV MAX	QIV TYP	T_C = 25°C	T_C = 100°C	T_C = 125°C	MAX	T_C = 125°C MIN	T_C = 25°C MAX
1.0 Amp			Q0201U3			200	10	10	10		25	.02	0.5	1.0	1.6	0.2	2.0
			Q0401U3			400	10	10	10		25	.02	0.5	1.0	1.6	0.2	2.0
			Q0501U3			500	10	10	10		25	.02	0.5	1.0	1.6	0.2	2.0
			Q0601U3			600	10	10	10		25	.02	0.5	1.0	1.6	0.2	2.0
			Q0201U4			200	25	25	25		50	.02	0.5	1.0	1.6	0.2	2.5
			Q0401U4			400	25	25	25		50	.02	0.5	1.0	1.6	0.2	2.5
			Q0501U4			500	25	25	25		50	.02	0.5	1.0	1.6	0.2	2.5
			Q0601U4			600	25	25	25		50	.02	0.5	1.0	1.6	0.2	2.5
	Q0201E3					200	10	10	10		25	.02	0.5	1.0	1.6	0.2	2.0
	Q0401E3					400	10	10	10		25	.02	0.5	1.0	1.6	0.2	2.0
	Q0501E3					500	10	10	10		25	.02	0.5	1.0	1.6	0.2	2.0
	Q0601E3					600	10	10	10		25	.02	0.5	1.0	1.6	0.2	2.0
	Q0201E4					200	25	25	25		50	.02	0.5	1.0	1.6	0.2	2.5
	Q0401E4					400	25	25	25		50	.02	0.5	1.0	1.6	0.2	2.5
	Q0501E4					500	25	25	25		50	.02	0.5	1.0	1.6	0.2	2.5
	Q0601E4					600	25	25	25		50	.02	0.5	1.0	1.6	0.2	2.5
4.0 Amps		Q2004L3		Q2004F31		200	10	10	10		25	.05	0.5	2.0	1.6	0.2	2.5
		Q4004L3		Q4004F31		400	10	10	10		25	.05	0.5	2.0	1.6	0.2	2.0
		Q5004L3		Q5004F31		500	10	10	10		25	.05	0.5	2.0	1.6	0.2	2.0
		Q6004L3		Q6004F31		600	10	10	10		25	.05	0.5	2.0	1.6	0.2	2.0
		Q2004L4		Q2004F41		200	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.0
		Q4004L4		Q4004F41		400	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q5004L4		Q5004F41		500	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q6004L4		Q6004F41		600	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q7004L4				700	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q8004L4				800	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
6.0 Amps		Q2006L4		Q2006F41	Q2006R4	200	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q4006L4		Q4006F41	Q4006R4	400	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q5006L4		Q5006F41	Q5006R4	500	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q6006L5		Q6006F51	Q6006R5	600	50	50	50		75	.05	0.5	2.0	1.6	0.2	2.5
		Q7006L5			Q7006R5	700	50	50	50		75	.05	0.5	2.0	1.6	0.2	2.5
		Q8006L5			Q8006R5	800	50	50	50		75	.05	0.5	2.0	1.6	0.2	2.5
					SC141B	200	50	50	50			0.1	0.5		1.83	0.2	2.5
					SC141D	400	50	50	50			0.1	0.5		1.83	0.2	2.5
					SC141E	500	50	50	50			0.1	0.5		1.83	0.2	2.5
					SC141M	600	50	50	50			0.1	0.5		1.83	0.2	2.5
					SC141N	800	50	50	50			0.1	0.5		1.83	0.2	2.5
8.0 Amps		Q2008L4		Q2008F41	Q2008R4	200	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q4008L4		Q4008F41	Q4008R4	400	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q5008L4		Q5008F41	Q5008R4	500	25	25	25		50	.05	0.5	2.0	1.6	0.2	2.5
		Q6008L5		Q6008F51	Q6008R5	600	50	50	50		75	.05	0.5	2.0	1.6	0.2	2.5
		Q7008L5			Q7008R5	700	50	50	50		75	.05	0.5	2.0	1.6	0.2	2.5
		Q8008L5			Q8008R5	800	50	50	50		75	.05	0.5	2.0	1.6	0.2	2.5
					SC143B	200	50	50	50			0.1	0.5		1.55	0.2	2.5
					SC143D	400	50	50	50			0.1	0.5		1.55	0.2	2.5
					SC143E	500	50	50	50			0.1	0.5		1.55	0.2	2.5
					SC143M	600	50	50	50			0.1	0.5		1.55	0.2	2.5

GENERAL NOTES

- All measurements are made at 60 Hz with a resistive load at an ambient temperature of +25°C unless specified otherwise
- Operating temperature range (T_J) is −65°C to +125°C for TO−92 and SOT−89 devices, 0°C to +125°C for Fastpak, and −40°C to +125°C for all other devices
- Storage temperature range (T_S) is −65°C to +150°C for TO−92 and SOT−89 devices, −40°C to +150°C for TO−202 devices, −20°C to +125°C for fastpaks and −40°C to +125°C for all other devices
- Lead solder temperature is a maximum of 230°C for 10 seconds maximum; ≥ 1/16" from case
- The case temperature (T_C) is measured as shown on the dimensional outline drawings. See "Package Dimensions" section of this catalog

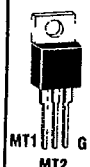
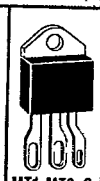
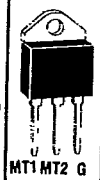
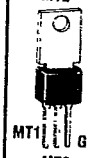
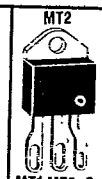
Electrical Specifications

I_H	I_{GTM}	P_{GM}	$P_{G(AV)}$	I_{TSM}		dv/dt (c)	dv/dt		t_{gt}	I^2t	di/dt
Holding Current (DC) Gate Open (1) (8) (12)	Peak Gate Trigger Current (14)	Peak Gate Power Dissipation (14) $I_{GT} \leq I_{GTM}$	Average Gate Power Dissipation	Peak One Cycle Surge (9) (13)		Critical Rate of Rise of Commutation Voltage at Rated V_{DRM} and I_T (RMS) Commutating di/dt = .54 Rated I_T(RMS)/msec. Gate Unenergized (1) (4) (13)	Critical Rate of Rise of Off-State Voltage at Rated V_{DRM} Gate Open (1)		Gate Controlled Turn-On Time I_{GT} = 200mA 0.1 μs Rise Time (10)	RMS Surge (Non-Repetitive) On-State Current For period of 8.3 msec for Fusing	Maximum Rate of Change of On-State Current I_{GT} = 200 mA With 0.1 μs Rise Time
							Volts/μs				
mA	Amps	Watts	Watts	Amps		Volts/μs	MIN		μs	$Amps^2sec.$	Amps/μs
MAX				60Hz	50Hz	MIN	T_C = 100°C	T_C = 125°C	MAX		
15	1.0	10	0.2	10	8.3	1.0	30	20	2.5	0.41	20
15	1.0	10	0.2	10	8.3	1.0	30	20	2.5	0.41	20
15	1.0	10	0.2	10	8.3	1.0	25	15	2.5	0.41	20
15	1.0	10	0.2	10	8.3	1.0	25	15	2.5	0.41	20
25	1.0	10	0.2	10	8.3	1.0	45	30	3	0.41	20
25	1.0	10	0.2	10	8.3	1.0	45	30	3	0.41	20
25	1.0	10	0.2	10	8.3	1.0	35	25	3	0.41	20
25	1.0	10	0.2	10	8.3	1.0	35	25	3	0.41	20
15	1.0	10	0.2	20	16.7	1.0	30	20	2.5	1.6	30
15	1.0	10	0.2	20	16.7	1.0	30	20	2.5	1.6	30
15	1.0	10	0.2	20	16.7	1.0	25	15	2.5	1.6	30
15	1.0	10	0.2	20	16.7	1.0	25	15	2.5	1.6	30
25	1.0	10	0.2	20	16.7	1.0	45	30	3	1.6	30
25	1.0	10	0.2	20	16.7	1.0	45	30	3	1.6	30
25	1.0	10	0.2	20	16.7	1.0	35	25	3	1.6	30
25	1.0	10	0.2	20	16.7	1.0	35	25	3	1.6	30
20	1.2	15	0.3	55	46	2.0	45	30	2.5	12.5	50
20	1.2	15	0.3	55	46	2.0	45	30	2.5	12.5	50
20	1.2	15	0.3	55	46	2.0	30	20	2.5	12.5	50
20	1.2	15	0.3	55	46	2.0	30	20	2.5	12.5	50
30	1.2	15	0.3	55	46	2.0	75	50	3	12.5	50
30	1.2	15	0.3	55	46	2.0	75	50	3	12.5	50
30	1.2	15	0.3	55	46	2.0	50	35	3	12.5	50
30	1.2	15	0.3	55	46	2.0	50	35	3	12.5	50
30	1.2	15	0.3	55	46	2.0	40	25	3	12.5	50
30	1.2	15	0.3	55	46	2.0	40	25	3	12.5	50
50	1.6	18	0.5	80	65	4.0	150	100	3	26.5	70
50	1.6	18	0.5	80	65	4.0	150	100	3	26.5	70
50	1.6	18	0.5	80	65	4.0	125	85	3	26.5	70
50	1.6	18	0.5	80	65	4.0	125	85	3	26.5	70
50	1.6	18	0.5	80	65	4.0	100	75	3	26.5	70
50	1.6	18	0.5	80	65	4.0	100	75	3	26.5	70
50	1.6	10	0.5	80	74	4.0	30		3	26.5	70
50	1.6	10	0.5	80	74	4.0	30		3	26.5	70
50	1.6	10	0.5	80	74	4.0	30		3	26.5	70
50	1.6	10	0.5	80	74	4.0	30		3	26.5	70
50	1.6	10	0.5	80	74	4.0	30		3	26.5	70
50	1.8	20	0.5	100	83	4.0	175	120	3	41	70
50	1.8	20	0.5	100	83	4.0	175	120	3	41	70
50	1.8	20	0.5	100	83	4.0	150	100	3	41	70
50	1.8	20	0.5	100	83	4.0	150	100	3	41	70
50	1.8	20	0.5	100	83	4.0	125	85	3	41	70
50	1.8	20	0.5	100	83	4.0	125	85	3	41	70
50	1.8	10	0.5	120	110	4.0	50		3	60	70
50	1.8	10	0.5	120	110	4.0	50		3	60	70
50	1.8	10	0.5	120	110	4.0	50		3	60	70
50	1.8	10	0.5	120	110	4.0	50		3	60	70

NOTES TO ELECTRICAL SPECIFICATIONS

1. For either polarity of MT2 with reference to MT1 terminal.
2. For either polarity of gate voltage (V_{GT}) with reference to MT1 terminal.
3. See definition of quadrants
4. See figures 1A, B, C, D, E, F and Figure 2 for current rating at specific operating temperature.
5. See figures 3A, B, and C for i_T vs v_T
6. See figure 5 for V_{GT} vs T_C
7. See figure 4 for I_{GT} vs T_C
8. See figure 6 for I_H vs T_C
9. See figure 7 for surge rating with specific durations
10. See figures 8A and B for I_{gt} vs I_{GT}
11. See package outlines for lead form configurations. When ordering special lead forming, add type number as suffix to part number.
12. Initial on-state current = 200 mA(DC) for 1—10 amp devices; 400 mA(DC) for 15 amp to 40 amp devices.
13. See figure 1(A, B, C, D, E, and F) for maximum allowable case temperature @ maximum rated current.
14. Pulse width ≤ 3μsec

GATED TRIACS 1-40 AMPS

I_{TRMS}	Part Number							V_{DRM}	I_{GT}					I_{DRM}			V_{GT}	
	Isolated				Non-Isolated													
RMS On-State Current Conduction Angle of 360° (4) (16)	 MT1 G MT2 THERMOTAB TO-220AB	 MT1 MT2 G ISOLATED TO-218X	 MT1 MT2 G FASTPAK TO-3-BASE	 MT1 MT2 G TO-218AC	 MT2 MT1 G MT2 TO-202AB	 MT2 MT1 G MT2 NON-ISOLATED TO-220AB	 MT2 MT1 MT2 G NON-ISOLATED TO-218X	Repetitive Peak Blocking Voltage (1)	DC Gate Trigger Current in Specific Operating Quadrants V_D = 12 VDC (3) (7) (15)					Peak Off-State Current Gate Open V_{DRM} = Max Rated Value (1)			DC Gate Trigger Voltage V_D = 12VDC (2) (6) (15)	
Amps								Volts	mA					MAX			Volts	
MAX	FOR PACKAGE DIMENSIONS & VARIATIONS SEE PAGE 81							MIN	QI MAX	QII MAX	QIII MAX	QIV MAX	QIV TYP	T_C = 25°C	T_C = 100°C	T_C = 125°C	MIN	MAX
10.0 Amps	Q2010L5				Q2010F51	Q2010R5		200	50	50	50		75	.05	0.5	2.0	0.2	2.5
	Q4010L5				Q4010F51	Q4010R5		400	50	50	50		75	.05	0.5	2.0	0.2	2.5
	Q5010L5				Q5010F51	Q5010R5		500	50	50	50		75	.05	0.5	2.0	0.2	2.5
	Q6010L5				Q6010F51	Q6010R5		600	50	50	50		75	.05	0.5	2.0	0.2	2.5
	Q7010L5					Q7010R5		700	50	50	50		75	.05	0.5	2.0	0.2	2.5
	Q8010L5					Q8010R5		800	50	50	50		75	.05	0.5	2.0	0.2	2.5
						SC146B		200	50	50	50			0.1	0.5		0.2	2.5
						SC146D		400	50	50	50			0.1	0.5		0.2	2.5
						SC146E		500	50	50	50			0.1	0.5		0.2	2.5
						SC146M		600	50	50	50			0.1	0.5		0.2	2.5
						SC146N		800	50	50	50			0.1	0.5		0.2	2.5
15.0 Amps	Q2015L5					Q2015R5		200	50	50	50		75	.05	0.5	2.0	0.2	2.5
	Q4015L5					Q4015R5		400	50	50	50		75	.05	0.5	2.0	0.2	2.5
	Q5015L5					Q5015R5		500	50	50	50		75	.05	0.5	2.0	0.2	2.5
	Q6015L5					Q6015R5		600	50	50	50		75	.05	0.5	2.0	0.2	2.5
	Q7015L5					Q7015R5		700	50	50	50		75	0.1	1.0	3.0	0.2	2.5
	Q8015L5					Q8015R5		800	50	50	50		75	0.1	1.0	3.0	0.2	2.5
						SC151B		200	50	50	50			0.1	0.5		0.2	2.5
						SC151D		400	50	50	50			0.1	0.5		0.2	2.5
						SC151E		500	50	50	50			0.1	0.5		0.2	2.5
						SC151M		600	50	50	50			0.1	0.5		0.2	2.5
25.0 Amps	Q2025L6		Q2025P			Q2025R6		200	80	80	80			0.1	1.0	3.0	0.2	2.5
	Q4025L6		Q4025P			Q4025R6		400	80	80	80			0.1	1.0	3.0	0.2	2.5
	Q5025L6		Q5025P			Q5025R6		500	80	80	80			0.1	1.0	3.0	0.2	2.5
	Q6025L6		Q6025P			Q6025R6		600	80	80	80			0.1	1.0	3.0	0.2	2.5
	Q7025L6		Q7025P			Q7025R6		700	80	80	80			0.1	1.0	3.0	0.2	2.5
	Q8025L6		Q8025P			Q8025R6		800	80	80	80			0.1	1.0	3.0	0.2	2.5
						SC129B		200	50	50	50			0.1	1.0		0.2	2.5
						SC129D		400	50	50	50			0.1	1.0		0.2	2.5
						SC129E		500	50	50	50			0.1	1.0		0.2	2.5
						SC129M		600	50	50	50			0.1	1.0		0.2	2.5
		Q2025J6		Q2025K6				200	80	80	80			0.1	1.0	3.0	0.2	2.5
		Q4025J6		Q4025K6				400	80	80	80			0.1	1.0	3.0	0.2	2.5
		Q5025J6		Q5025K6				500	80	80	80			0.1	1.0	3.0	0.2	2.5
		Q6025J6		Q6025K6				600	80	80	80			0.1	1.0	3.0	0.2	2.5
		Q7025J6		Q7025K6				700	80	80	80			0.1	1.0	3.0	0.2	2.5
		Q8025J6		Q8025K6				800	80	80	80			0.1	1.0	3.0	0.2	2.5
40.0 Amps			Q2040P					200	100	100	100			0.2	2.0	5.0	0.2	2.5
			Q4040P					400	100	100	100			0.2	2.0	5.0	0.2	2.5
			Q5040P					500	100	100	100			0.2	2.0	5.0	0.2	2.5
			Q6040P					600	100	100	100			0.2	2.0	5.0	0.2	2.5
			Q7040P					700	100	100	100			0.2	2.0	5.0	0.2	2.5
		Q2040J7		Q2040K7			Q2040W7	200	100	100	100			0.2	2.0	5.0	0.2	2.5
		Q4040J7		Q4040K7			Q4040W7	400	100	100	100			0.2	2.0	5.0	0.2	2.5
		Q5040J7		Q5040K7			Q5040W7	500	100	100	100			0.2	2.0	5.0	0.2	2.5
		Q6040J7		Q6040K7			Q6040W7	600	100	100	100			0.2	2.0	5.0	0.2	2.5
		Q7040J7		Q7040K7			Q7040W7	700	100	100	100			0.2	2.0	5.0	0.2	2.5
		Q8040J7		Q8040K7			Q8040W7	800	100	100	100			0.2	2.0	5.0	0.2	2.5

GENERAL NOTES

- All measurements are made at 60 Hz with a resistive load at an ambient temperature of +25°C unless specified otherwise
- Operating temperature range (T_J) is −65°C to +125°C for TO−92 and SOT−89 devices, 0°C to +125°C for Fastpak, and −40°C to +125°C for all other devices
- Storage temperature range (T_S) is −65°C to +150°C for TO−92 and SOT−89 devices, −40°C to +150°C for TO−202 devices, −20°C to +125°C for fastpaks and −40°C to +125°C for all other devices
- Lead solder temperature is a maximum of 230°C for 10 seconds maximum; ≥ 1/16" from case
- The case temperature (T_C) is measured as shown on the dimensional outline drawings. See "Package Dimensions" section of this catalog

Electrical Specifications

T-25-15

	V_{TM}	I_H	I_{GTM}	P_{GM}	$P_{G(AV)}$	I_{TSM}		dv/dt (c)	dv/dt		tgt	I^2t	di/dt
	Peak On-State Voltage at Max Rated RMS Current T_C = 25°C (1) (5)	Holding Current (DC) Gate Open (1) (8) (12)	Peak Gate Trigger Current (14)	Peak Gate Power Dissipation (14) $I_{GT} \leq I_{GTM}$	Average Gate Power Dissipation	Peak One Cycle Surge (9) (13)		Critical Rate of Rise of Commutation Voltage at Rated V_{DRM} and I_T (RMS) Commutating di/dt = .54 Rated $I_{T(RMS)}$/msec. Gate Unenergized (1) (4) (13)	Critical Rate of Rise of Off-State Voltage at Rated V_{DRM} Gate Open (1)		Gate Controlled Turn-On Time I_{GT} = 200mA 0.1 μS Rise Time (10) (17)	RMS Surge (Non-Repetitive) On-State Current For period of 8.3 msec for Fusing	Maximum Rate of Change of On-State Current I_{GT} = 200 mA With 0.1 μS Rise Time
	Volts	mA	Amps	Watts	Watts	Amps		Volts/μs	Volts/μs MIN		μS	$Amps^2sec.$	Amps/μs
	MAX	MAX				60Hz	50Hz	MIN	T_C = 100°C	T_C = 125°C	MAX		
	1.6	50	1.8	20	0.5	120	100	4	200	150	3	60	70
	1.6	50	1.8	20	0.5	120	100	4	200	150	3	60	70
	1.6	50	1.8	20	0.5	120	100	4	175	120	3	60	70
	1.6	50	1.8	20	0.5	120	100	4	175	120	3	60	70
	1.6	50	1.8	20	0.5	120	100	4	150	100	3	60	70
	1.6	50	1.8	20	0.5	120	100	4	150	100	3	60	70
	1.65	50	1.8	10	0.5	120	110	4	100		3	60	70
	1.65	50	1.8	10	0.5	120	110	4	100		3	60	70
	1.65	50	1.8	10	0.5	120	110	4	100		3	60	70
	1.65	50	1.8	10	0.5	120	110	4	100		3	60	70
	1.65	50	1.8	10	0.5	120	110	4	100		3	60	70
	1.6	70	2.0	20	0.5	150	125	4	300	200	4	93	100
	1.6	70	2.0	20	0.5	150	125	4	300	200	4	93	100
	1.6	70	2.0	20	0.5	150	125	4	200	150	4	93	100
	1.6	70	2.0	20	0.5	150	125	4	200	150	4	93	100
	1.6	70	2.0	20	0.5	150	125	4	175	125	4	93	100
	1.6	70	2.0	20	0.5	150	125	4	175	125	4	93	100
	1.52	50	2.0	10	0.5	120	110	4	100		4	60	100
	1.52	50	2.0	10	0.5	120	110	4	100		4	60	100
	1.52	50	2.0	10	0.5	120	110	4	100		4	60	100
	1.52	50	2.0	10	0.5	120	110	4	100		4	60	100
	1.8	80	2.0	20	0.5	250	208	5	375	250	4	259	100
	1.8	80	2.0	20	0.5	250	208	5	375	250	4	259	100
	1.8	80	2.0	20	0.5	250	208	5	300	200	4	259	100
	1.8	80	2.0	20	0.5	250	208	5	300	200	4	259	100
	1.8	80	2.0	20	0.5	250	208	5	250	175	4	259	100
	1.8	80	2.0	20	0.5	250	208	5	250	175	4	259	100
	1.58	75	3.5	10	0.5	250	230	4			4	259	100
	1.58	75	3.5	10	0.5	250	230	4			4	259	100
	1.58	75	3.5	10	0.5	250	230	4			4	259	100
	1.58	75	3.5	10	0.5	250	230	4			4	259	100
	1.8	80	4.0	40	0.8	300	250	5	375	250	4	374	150
	1.8	80	4.0	40	0.8	300	250	5	375	250	4	374	150
	1.8	80	4.0	40	0.8	300	250	5	300	200	4	374	150
	1.8	80	4.0	40	0.8	300	250	5	300	200	4	374	150
	1.8	80	4.0	40	0.8	300	250	5	250	175	4	374	150
	1.8	80	4.0	40	0.8	300	250	5	250	175	4	374	150
	1.8	100	4.0	40	0.8	300	250	5	450	300	5	374	150
	1.8	100	4.0	40	0.8	300	250	5	450	300	5	374	150
	1.8	100	4.0	40	0.8	300	250	5	375	250	5	374	150
	1.8	100	4.0	40	0.8	300	250	5	375	250	5	374	150
	1.8	100	4.0	40	0.8	300	250	5	350	225	5	374	150
	1.8	100	4.0	40	0.8	400	335	5	450	300	5	664	150
	1.8	100	4.0	40	0.8	400	335	5	450	300	5	664	150
	1.8	100	4.0	40	0.8	400	335	5	375	250	5	664	150
	1.8	100	4.0	40	0.8	400	335	5	375	250	5	664	150
	1.8	100	4.0	40	0.8	400	335	5	350	225	5	664	150
	1.8	100	4.0	40	0.8	400	335	5	350	225	5	664	150

NOTES TO ELECTRICAL SPECIFICATIONS

1. For either polarity of MT2 with reference to MT1 terminal.
2. For either polarity of gate voltage (V_{GT}) with reference to MT1 terminal.
3. See definition of quadrants
4. See figures 1A, B, C, D, E, F and Figure 2 for current rating at specific operating temperature.
5. See figures 3A, B, and C for i_T vs v_T
6. See figure 5 for V_{GT} vs T_C
7. See figure 4 for I_{GT} vs T_C
8. See figure 6 for I_H vs T_C
9. See figure 7 for surge rating with specific durations
10. See figures 8A and B for t_{gt} vs I_{GT}
11. See package outlines for lead form configurations. When ordering special lead forming, add type number as suffix to part number.
12. Initial on-state current = 200 mA(DC) for 1—10 amp devices; 400 mA(DC) for 15 amp to 40 amp devices.
13. See figure 1(A, B, C, D, E and F) for maximum allowable case temperature @ maximum rated current.
14. Pulse width ≤ 3μsec
15. R_L = 60Ω for 8-10 amp triacs; R_L = 30Ω for 15-40 amp triacs.
16. 40 Amp "K" package pin terminal leads can run 100°C to 125°C.
17. I_{GT} = 500mA for 25 Amp and 40 Amp devices.

Electrical Specifications

THERMAL RESISTANCE (STEADY STATE)

$R_{\theta JC}$ / $R_{\theta JA}$ (TYP.) °C/W

Type	SOT-89	TO-92	TYPE 1 TO-202AB	TYPE 2 TO-202AB	THERMOTAB TO-220AB	NON-ISOLATED TO-220AB	ISOLATED TO-218X	NON-ISOLATED TO-218X	FASTPAK TO-3 BASE	ISOLATED TO-218AC
1.0 Amp	30	50/105								
4.0 Amp			3.5/45	6/70	3.6/50					
6.0 Amp			3.8		3.3	2.1				
8.0 Amp			3.3		2.8	1.8				
10.0 Amp			3.5		2.6	1.5				
15.0 Amp					2.0	1.3				
25.0 Amp					1.4	1.1	1.32		1.3	1.35
40.0 Amp							0.95	0.85	0.9	0.97

ELECTRICAL ISOLATION FROM LEADS TO CASE

U.L. RECOGNIZED FILE #E71639

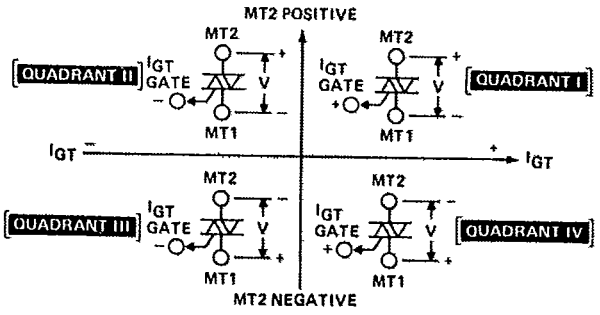
TYPE / VAC (RMS)		TO-92			ISOLATED TO-220AB		ISOLATED TO-218X		FASTPAK TO-3 BASE	ISOLATED TO-218AC
1600		Standard			—		—		—	—
2500		No			Standard		Standard		Standard	Standard
4000		No			Optional*		No		No	No

*For 4000V Isolation use "V" Suffix.

GATE CHARACTERISTICS

Teccor triacs may be gated with in-phase signals (using standard AC line) in which quadrants I & III are used, or by applying unipolar pulses (gate always positive or negative), where if a negative pulse is applied, quadrants II & III are used, and quadrants I & IV are used when a positive pulse is applied. However, due to higher gate requirements for quadrant IV, it is recommended that only negative pulses be applied. If positive pulses are required see logic triac section of catalog or contact factory. In all cases, if maximum surge capability is required, pulses should be a minimum of one magnitude above minimum I_{GT} rating with a steep rising waveform (1 μsec rise time)

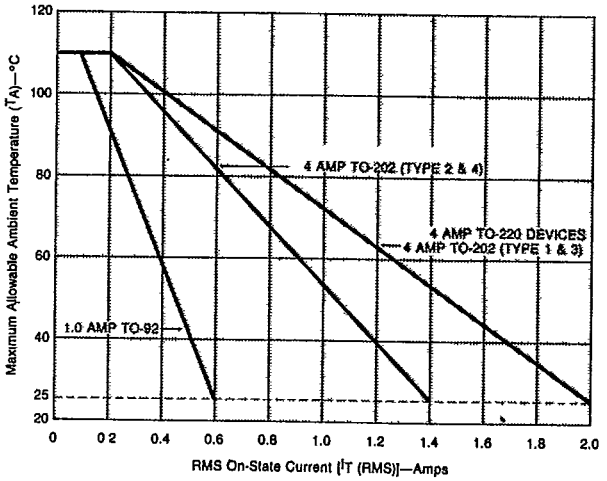
Definition of Operating Quadrants



ELECTRICAL ISOLATION

Most Teccor isolated triac packages will withstand a minimum high potential test of 2500 VAC (RMS) from leads to case, over the operating temperature range of the device. See isolation table for standard and optional isolation ratings.

FIGURE 2 — Maximum Allowable Ambient Temperature vs On-State Current



GATED TRIACS 1-40 AMPS

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

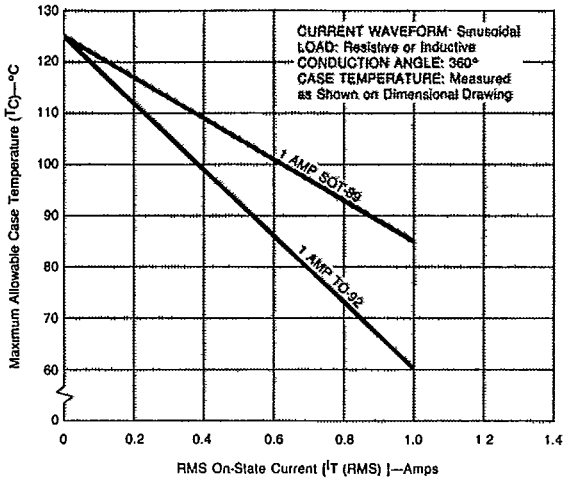


FIGURE 1B — Maximum Allowable Case Temperature vs On-State Current

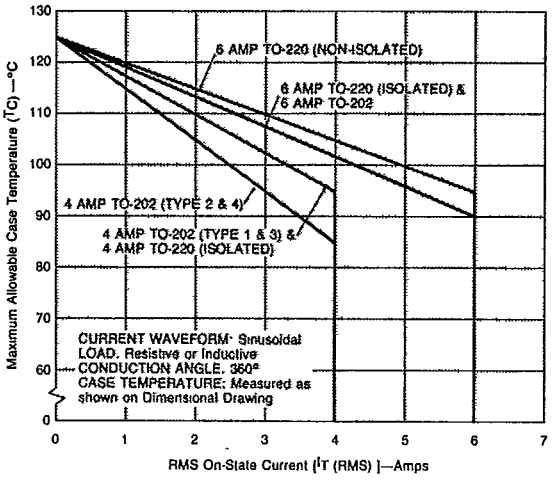


FIGURE 1C — Maximum Allowable Case Temperature vs On-State Current

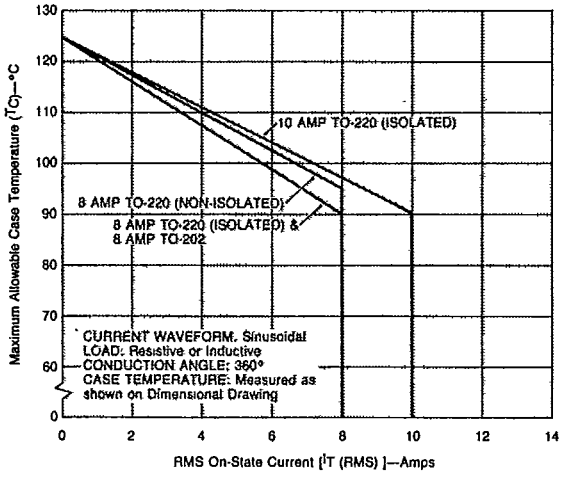


FIGURE 1D — Maximum Allowable Case Temperature vs On-State Current

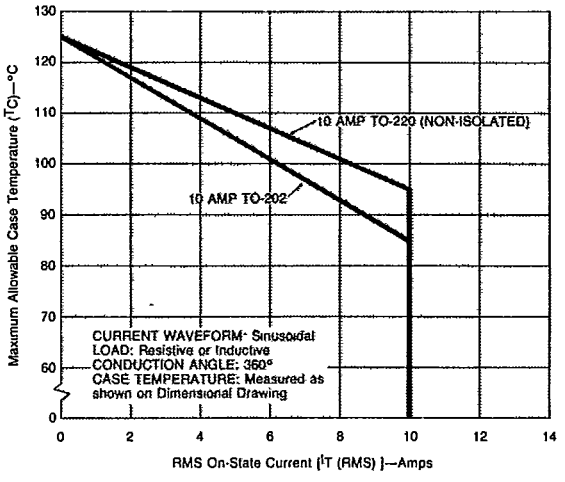


FIGURE 1E — Maximum Allowable Case Temperature vs On-State Current

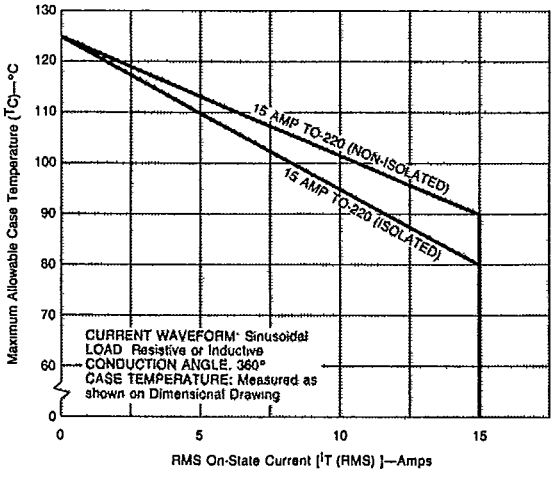
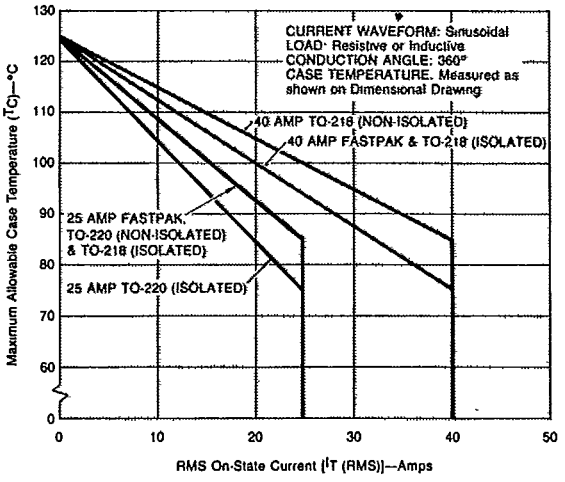


FIGURE 1F — Maximum Allowable Case Temperature vs On-State Current



GATED TRIACS 1-40 AMPS

FIGURE 3A — On-State Current vs On-State Voltage (Typical)

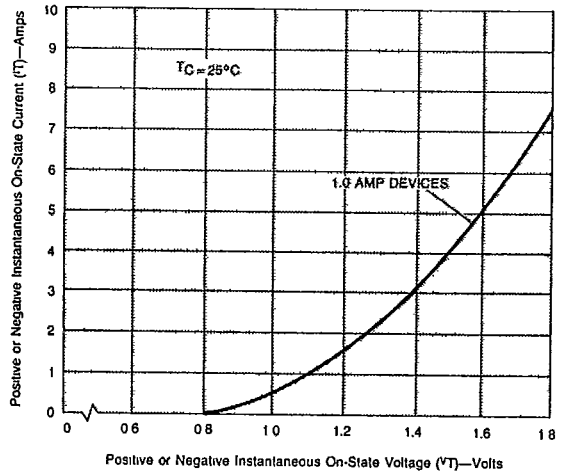


FIGURE 3B — On-State Current vs On-State Voltage (Typical)

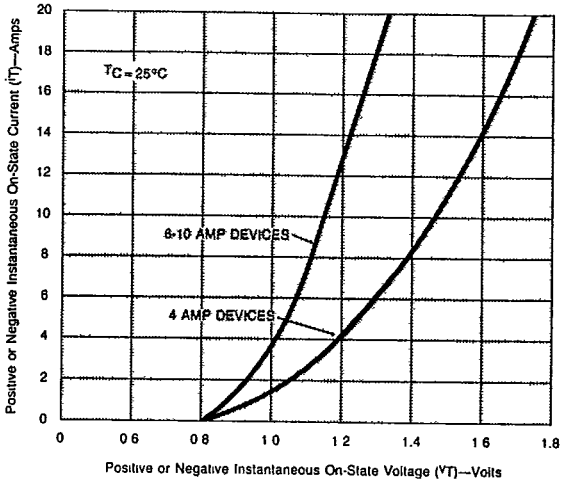


Figure 3C — On-State Current vs On-State Voltage (Typical)

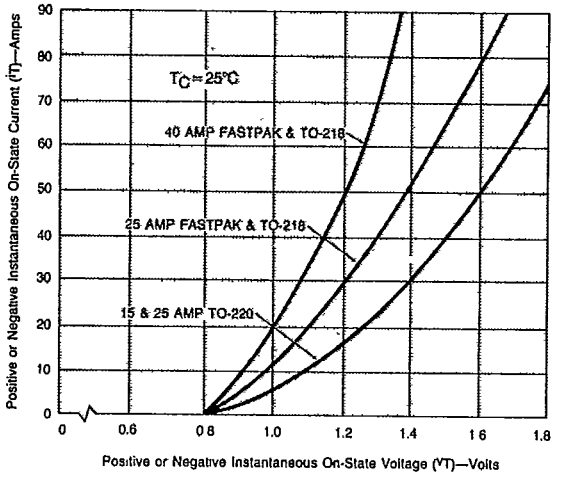


FIGURE 4 — Normalized DC Gate Trigger Current for All Quadrants vs Case Temperature

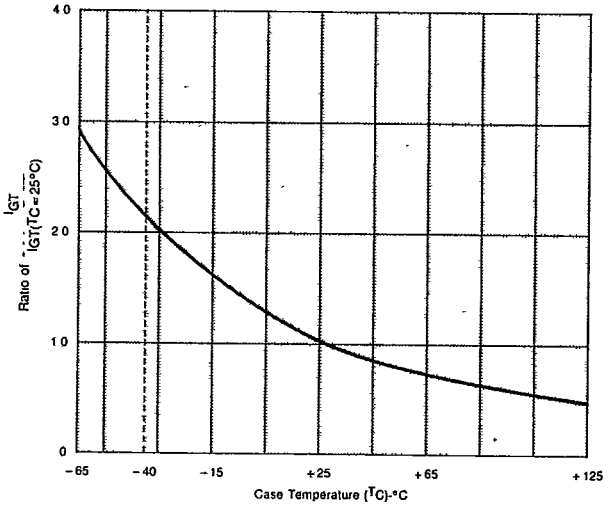


FIGURE 5 — Normalized DC Gate Trigger Voltage for All Quadrants vs Case Temperature

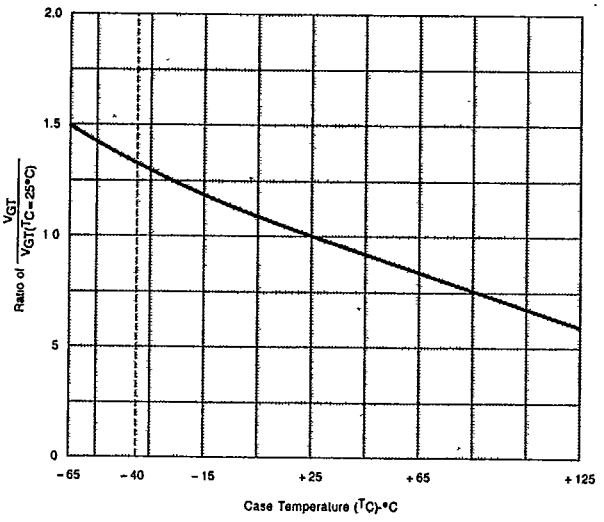
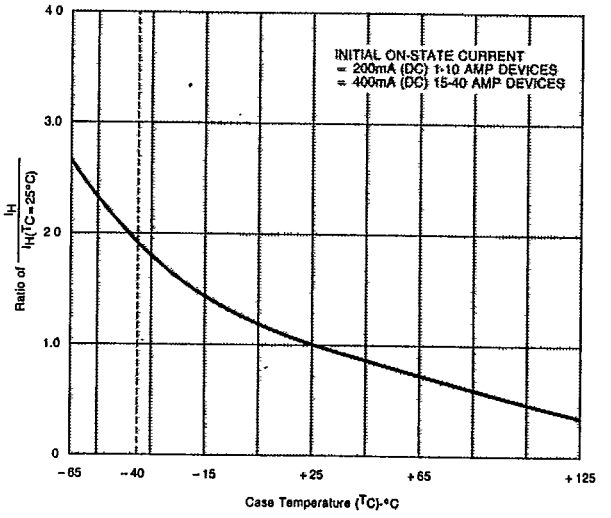
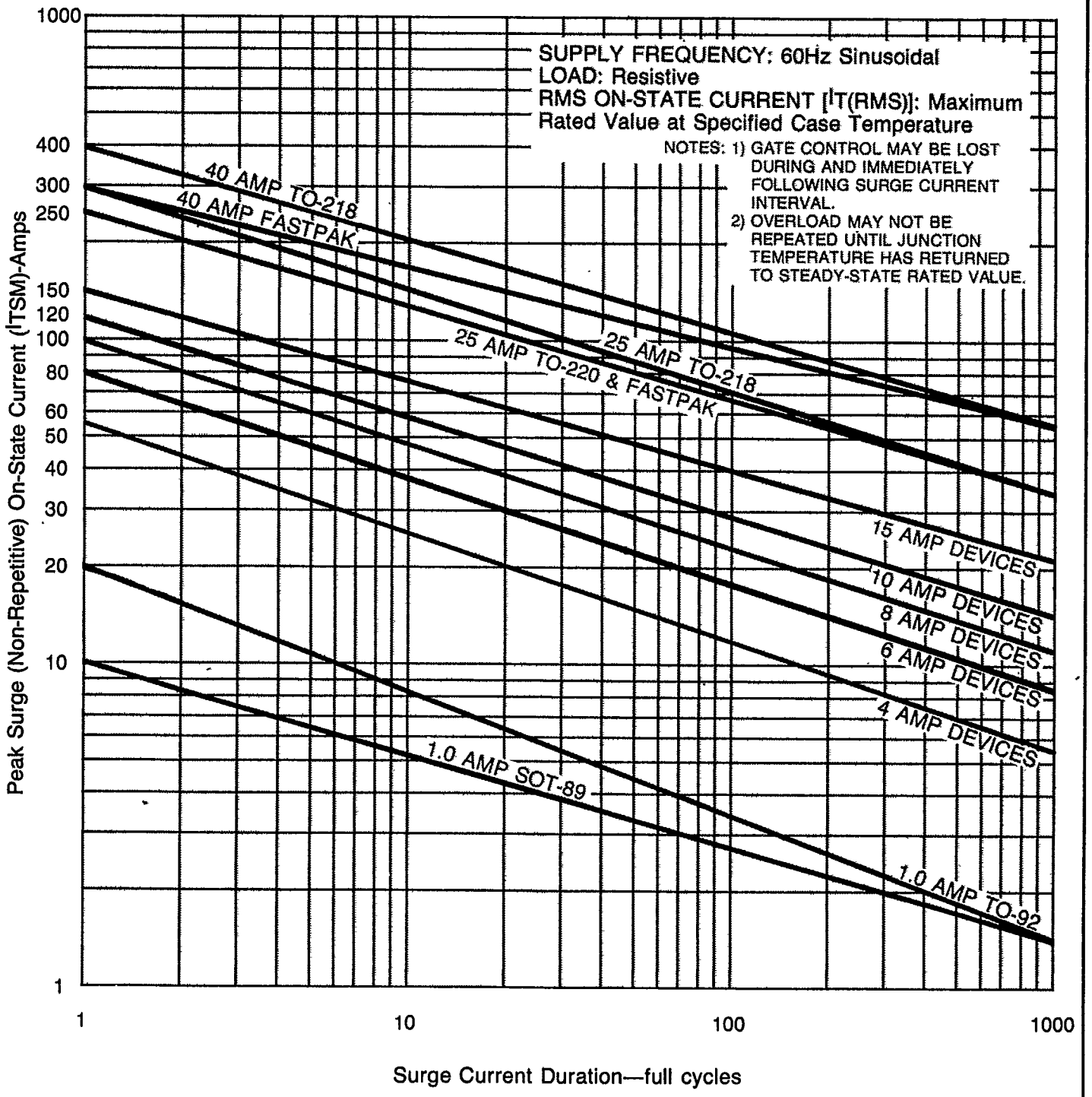


FIGURE 6 — Normalized DC Holding Current vs Case Temperature



GATED TRIACS 1-40 AMPS

FIGURE 7—Peak Surge Current vs Surge Current Duration



GATED TRIACS 1-40 AMPS

FIGURE 8A — Turn-On Time vs Gate Trigger Current (Typical)

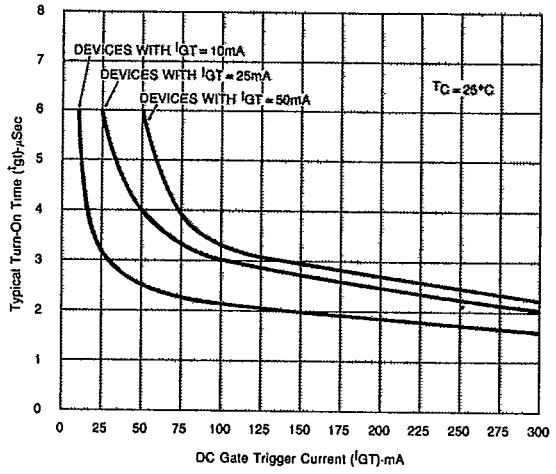


FIGURE 8B — Turn-On Time vs Gate Trigger Current (Typical)

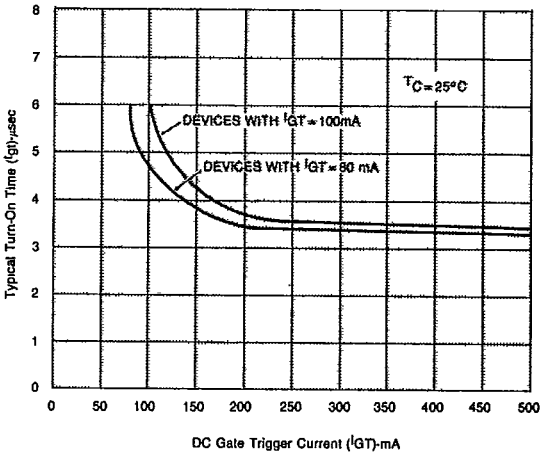


FIGURE 9A — Power Dissipation (Typ.) vs On-State Current

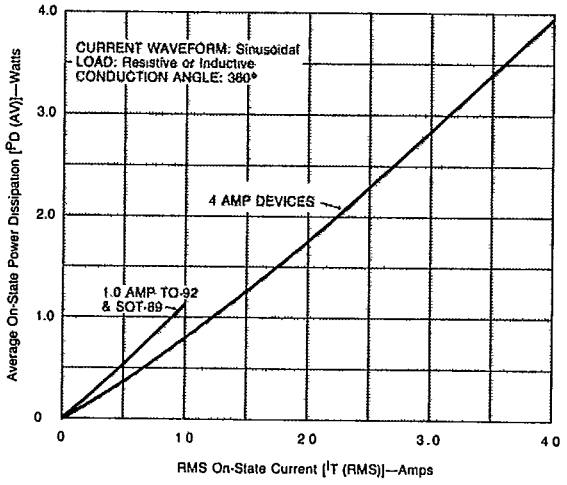


FIGURE 9B — Power Dissipation (Typ.) vs On-State Current

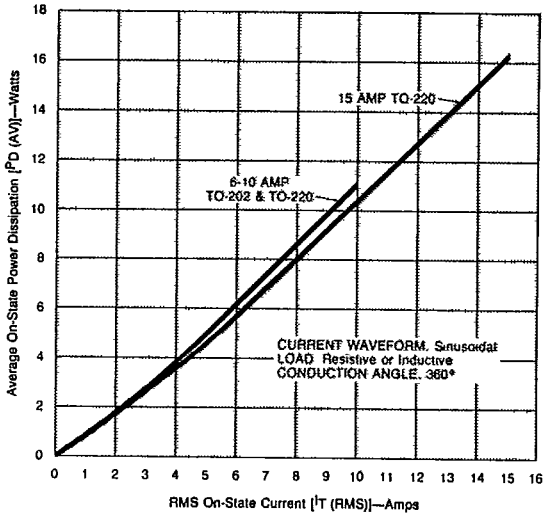


FIGURE 9C — Power Dissipation (Typ.) vs On-State Current