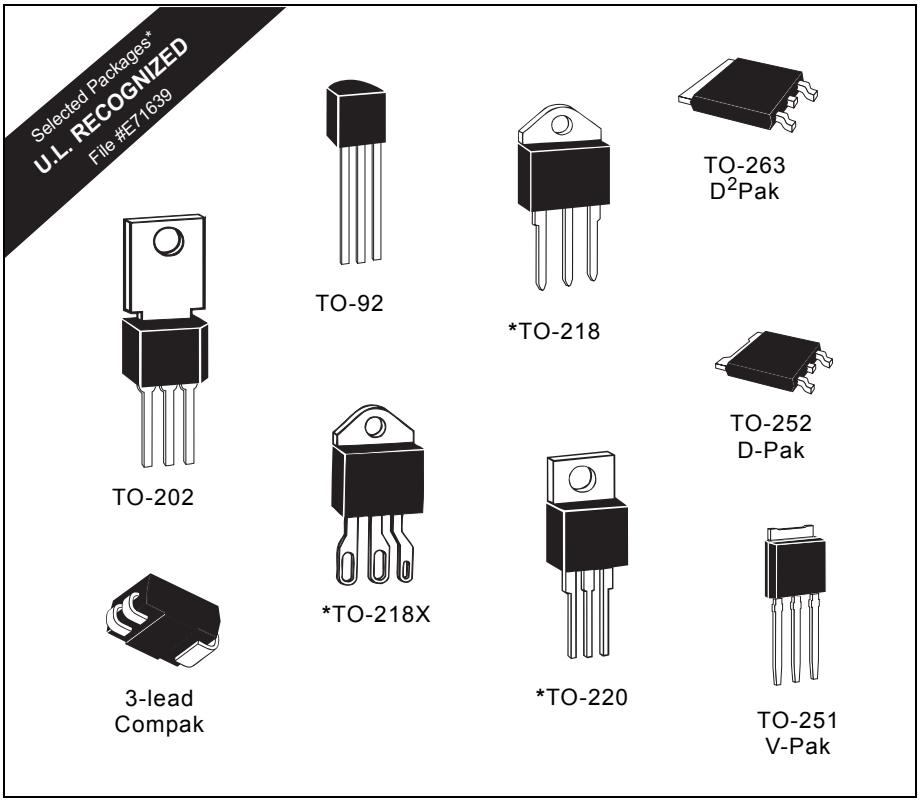
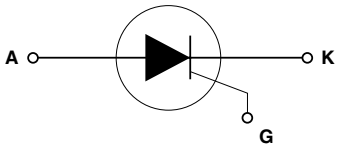


E6



SCRs

(1 A to 70 A)

General Description

The Teccor line of thyristor SCR semi-conductors are half-wave, unidirectional, gate-controlled rectifiers which complement Teccor's line of sensitive SCRs. Teccor offers devices with ratings of 1 A to 70 A and 200 V to 1000 V, with gate sensitivities from 10 mA to 50 mA. If gate currents in the 12 µA to 500 µA ranges are required, see "Sensitive SCRs" section of this catalog.

Three packages are offered in electrically isolated construction where the case or tab is internally isolated to allow the use of low-cost assembly and convenient packaging techniques.

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

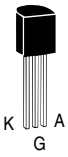
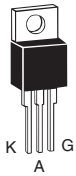
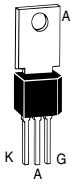
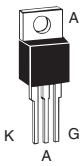
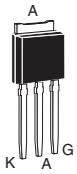
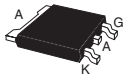
Variations of devices covered in this data sheet are available for custom design applications. Consult the factory for more information.

Features

- **Electrically-isolated package**
- **High voltage capability — 200 V to 1000 V**
- **High surge capability — up to 950 A**
- **Glass-passivated chip**

Compak SCR

- **Surface mount package — 1 A series**
- **New small profile three-leaded Compak package**
- **Packaged in embossed carrier tape with 2,500 devices per reel**
- **Can replace SOT-223**

TYPE	Part Number							I_T		V_{DRM} & V_{RRM}	I_{GT}	
		Isolated	Non-isolated					(1) (2) (15)			(4)	
	 TO-92	 TO-220	 TO-202	 TO-220	 TO-251 V-Pak	 Compak	 TO-252 D-Pak	Amps		Volts	mAmps	
	See “Package Dimensions” section for variations. (11)							$I_{T(RMS)}$ MAX	$I_{T(AV)}$ MAX	MIN	MIN	MAX
1 A	S201E					S2N1		1	0.64	200	1	10
	S401E					S4N1		1	0.64	400	1	10
	S601E					S6N1		1	0.64	600	1	10
6 A		S2006L	S2006F1		S2006V		S2006D	6	3.8	200	1	15
		S4006L	S4006F1		S4006V		S4006D	6	3.8	400	1	15
		S6006L	S6006F1		S6006V		S6006D	6	3.8	600	1	15
		S8006L			S8006V		S8006D	6	3.8	800	1	15
		SK006L			SK006V		SK006D	6	3.8	1000	1	15
8 A		S2008L	S2008F1	S2008R	S2008V		S2008D	8	5.1	200	1	15
		S4008L	S4008F1	S4008R	S4008V		S4008D	8	5.1	400	1	15
		S6008L	S6008F1	S6008R	S6008V		S6008D	8	5.1	600	1	15
		S8008L		S8008R	S8008V		S8008D	8	5.1	800	1	15
		SK008L		SK008R	SK008V		SK008D	8	5.1	1000	1	15
10 A		S2010L	S2010F1	S2010R	S2010V		S2010D	10	6.4	200	1	15
		S4010L	S4010F1	S4010R	S4010V		S4010D	10	6.4	400	1	15
		S6010L	S6010F1	S6010R	S6010V		S6010D	10	6.4	600	1	15
		S8010L		S8010R	S8010V		S8010D	10	6.4	800	1	15
		SK010L		SK010R	SK010V		SK010D	10	6.4	1000	1	15
12 A				S2012R	S2012V		S2012D	12	7.6	200	1	20
				S4012R	S4012V		S4012D	12	7.6	400	1	20
				S6012R	S6012V		S6012D	12	7.6	600	1	20
				S8012R	S8012V		S8012D	12	7.6	800	1	20
				SK012R	SK012V		SK012D	12	7.6	1000	1	20

Specific Test Conditions

di/dt — Maximum rate-of-rise of on-state current; I_{GT} = 150 mA with ≤ 0.1 µs rise time

dv/dt — Critical rate of applied forward voltage

I^2t — RMS surge (non-repetitive) on-state current for period of 8.3 ms for fusing

I_{DRM} and **I_{RRM}** — Peak off-state forward and reverse current at V_{DRM} and V_{RRM}

I_{gt} — dc gate trigger current; V_D = 12 V dc; R_L = 60 Ω for 1 to 16 A devices and 30 Ω for 20 to 70 A devices

I_{GM} — Peak gate current

I_H — dc holding current; gate open

I_T — Maximum on-state current

I_{TSM} — Peak one-cycle forward surge current

$P_{G(AV)}$ — Average gate power dissipation

P_{GM} — Peak gate power dissipation

t_{gt} — Gate controlled turn-on time; gate pulse = 100 mA; minimum width = 15 µs with rise time ≤ 0.1 µs

t_q — Circuit commutated turn-off time

V_{DRM} and **V_{RRM}** — Repetitive peak off-state forward and reverse voltage

V_{gt} — DC gate trigger voltage; V_D = 12 V dc; R_L = 60 Ω for 1 to 16 A devices and 30 Ω for 20 to 70 A devices

V_{TM} — Peak on-state voltage at maximum rated RMS current

General Notes

- All measurements are made at 60 Hz with a resistive load at an ambient temperature of +25 °C unless otherwise specified.
- Operating temperature range (T_J) is -65 °C to +125 °C for TO-92 devices and -40 °C to +125 °C for all other packages.
- Storage temperature range (T_S) is -65 °C to +150 °C for TO-92 devices, -40 °C to +150 °C for TO-202 and TO-220 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" (1.59 mm) from case.
- The case temperature (T_C) is measured as shown on dimensional outline drawings in the “Package Dimensions” sectionof this catalog.

I_{DRM} & I_{RRM}			V_{TM}	V_{GT}	I_H	I_{GM}	P_{GM}	$P_{G(AV)}$	I_{TSM}	dv/dt		I^2t	di/dt	t_{gt}	t_q
(14)			(3)	(8) (17)	(5) (13)	(12)	(12)		(6) (10)					(7)	(9) (10)
mAmps			Volts	Volts					Amps	Volts/µSec					
T_C = 25 °C	T_C = 100 °C	T_C = 125 °C	T_C = 25 °C	T_C = 25 °C	mAmps	Amps	Watts	Watts	60/50 Hz	T_C = 100 °C	T_C = 125 °C	$Amps^2Sec$	Amps/µSec	µSec	µSec
MAX			MAX	MAX	MAX					MIN	MIN			TYP	MAX
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**1.5**	**15**	**0.3**	**30/25**	**40**	**20**	**3.7**	**50**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**1.5**	**15**	**0.3**	**30/25**	**40**	**20**	**3.7**	**50**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**1.5**	**15**	**0.3**	**30/25**	**40**	**20**	**3.7**	**50**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**350**	**250**	**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**350**	**250**	**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**300**	**225**	**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**250**	**200**	**41**	**100**	**2**	**35**
0.02	**3**		**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**100**		**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**350**	**250**	**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**350**	**250**	**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**300**	**225**	**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**250**	**200**	**41**	**100**	**2**	**35**
0.02	**3**		**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**100**		**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**350**	**250**	**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**350**	**250**	**41**	**100**	**2**	**35**
0.01	**0.2**	**0.5**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**300**	**225**	**41**	**100**	**2**	**35**
0.02	**0.5**	**1**	**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**250**	**200**	**41**	**100**	**2**	**35**
0.02	**3**		**1.6**	**1.5**	**30**	**2**	**20**	**0.5**	**100/83**	**100**		**41**	**100**	**2**	**35**
0.01	**0.5**	**1**	**1.6**	**1.5**	**40**	**2**	**20**	**0.5**	**120/100**	**350**	**250**	**60**	**100**	**2**	**35**
0.01	**0.5**	**1**	**1.6**	**1.5**	**40**	**2**	**20**	**0.5**	**120/100**	**350**	**250**	**60**	**100**	**2**	**35**
0.01	**0.5**	**1**	**1.6**	**1.5**	**40**	**2**	**20**	**0.5**	**120/100**	**300**	**225**	**60**	**100**	**2**	**35**
0.02	**0.5**	**1**	**1.6**	**1.5**	**40**	**2**	**20**	**0.5**	**120/100**	**250**	**200**	**60**	**100**	**2**	**35**
0.02	**3**		**1.6**	**1.5**	**40**	**2**	**20**	**0.5**	**120/100**	**100**		**60**	**100**	**2**	**35**

Electrical Specification Notes

(1) See Figure E6.5 through Figure E6.16 for current rating at specified operating case temperature.

(2) See Figure E6.1 and Figure E6.2 for free air current rating.

(3) See Figure E6.19 and Figure E6.20 for instantaneous on-state current versus on-state voltage (typical).

(4) See Figure E6.18 for I_{GT} versus T_C.

(5) See Figure E6.17 for I_H versus T_C.

(6) For more than one full cycle rating, see Figure E6.23.

(7) See Figure E6.22 for t_{gt} versus I_{GT}.

(8) See Figure E6.21 for V_{GT} versus T_C.

(9) Test conditions are as follows:

- I_T = 1 A for 1 A devices and 2 A for all other devices
- Pulse duration = 50 µs, dv/dt = 20 V/µs, di/dt = -10 A/µs for 1 A devices, and -30 A/µs for other devices
- I_{GT} = 200 mA at turn-on

(10) See Figure E6.5 through Figure E6.10 for maximum allowable case temperatures at maximum rated current.

(11) See package outlines for lead form configuration. When ordering special lead forming, add type number as suffix to part number.

(12) Pulse width ≤10 µs

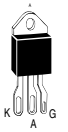
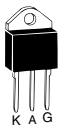
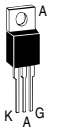
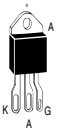
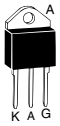
(13) Initial on-state current = 200 mA dc for 1 A through 16 A devices; 400 mA dc for 20 A through 70 A devices.

(14) $T_C = T_J$ for test conditions in off state.

(15) The R, K, or M package rating is intended for high surge condition use only and not recommended for ≥50 A rms continuous current use since narrow pin lead temperature can exceed PCB solder melting temperature. Teccor's J package or W package is recommended for ≥50 A rms continuous current requirements.

(16) For various durations of an exponentially decaying current waveform, see Figure E6.3 and Figure E6.4. (t_W is defined as 5 time constants.)

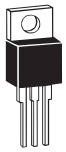
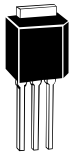
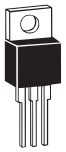
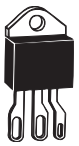
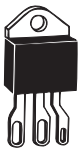
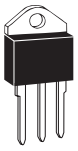
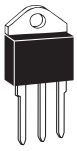
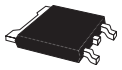
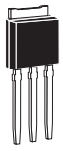
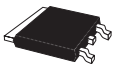
(17) Minimum non-trigger V_{GT} at 125 °C is 0.2 V.

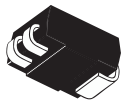
TYPE	Part Number							I_T		V_{DRM} & V_{RRM}	I_{GT}		I_{DRM} & I_{RRM}		
	Isolated			Non-isolated				(1) (15)			(4)		(14)		
								Amps		Volts	mAmps		mAmps		
	TO-220	TO-218X	TO-218	TO-220	TO-218X	TO-218	TO-263 D^2Pak	$I_{T(RMS)}$	$I_{T(AV)}$		MIN	MAX	T_C = 25 °C	T_C = 100 °C	T_C = 125 °C
	See “Package Dimensions” section for variations. (11)							MAX		MIN	MIN	MAX	MAX		
15 A	**S2015L**							**15**	**9.5**	**200**	**1**	**30**	**0.01**	**0.5**	**1**
	S4015L							**15**	**9.5**	**400**	**1**	**30**	**0.01**	**0.5**	**1**
	S6015L							**15**	**9.5**	**600**	**1**	**30**	**0.01**	**0.5**	**1**
	S8015L							**15**	**9.5**	**800**	**1**	**30**	**0.02**	**1**	**2**
	SK015L							**15**	**9.5**	**1000**	**1**	**30**	**0.02**	**3**	
16 A				**S2016R**			**S2016N**	**16**	**10**	**200**	**1**	**30**	**0.01**	**0.5**	**1**
				S4016R			**S4016N**	**16**	**10**	**400**	**1**	**30**	**0.01**	**0.5**	**1**
				S6016R			**S6016N**	**16**	**10**	**600**	**1**	**30**	**0.01**	**0.5**	**1**
				S8016R			**S8016N**	**16**	**10**	**800**	**1**	**30**	**0.02**	**1**	**2**
				SK016R			**SK016N**	**16**	**10**	**1000**	**1**	**30**	**0.02**	**3**	
20 A	**S2020L**							**20**	**12.8**	**200**	**1**	**30**	**0.01**	**0.5**	**1**
	S4020L							**20**	**12.8**	**400**	**1**	**30**	**0.01**	**0.5**	**1**
	S6020L							**20**	**12.8**	**600**	**1**	**30**	**0.01**	**0.5**	**1**
	S8020L							**20**	**12.8**	**800**	**1**	**30**	**0.02**	**1.0**	**2**
	SK020L							**20**	**12.8**	**1000**	**1**	**30**	**0.02**	**3**	
25 A	**S2025L**			**S2025R**			**S2025N**	**25**	**16**	**200**	**1**	**35**	**0.01**	**1**	**2**
	S4025L			**S4025R**			**S4025N**	**25**	**16**	**400**	**1**	**35**	**0.01**	**1**	**2**
	S6025L			**S6025R**			**S6025N**	**25**	**16**	**600**	**1**	**35**	**0.01**	**1**	**2**
	S8025L			**S8025R**			**S8025N**	**25**	**16**	**800**	**1**	**35**	**0.02**	**1.5**	**3**
	SK025L			**SK025R**			**SK025N**	**25**	**16**	**1000**	**1**	**35**	**0.02**	**3**	
35 A		**S2035J**	**S2035K**					**35**	**22**	**200**	**5**	**40**	**0.01**	**1**	**2**
		S4035J	**S4035K**					**35**	**22**	**400**	**5**	**40**	**0.01**	**1**	**2**
		S6035J	**S6035K**					**35**	**22**	**600**	**5**	**40**	**0.01**	**1**	**2**
		S8035J	**S8035K**					**35**	**22**	**800**	**5**	**40**	**0.02**	**1.5**	**3**
			SK035K					**35**	**22**	**1000**	**5**	**40**	**0.02**	**3**	
40 A				**S2040R**			**S2040N**	**40**	**25**	**200**	**5**	**40**	**0.01**	**1**	**2**
				S4040R			**S4040N**	**40**	**25**	**400**	**5**	**40**	**0.01**	**1**	**2**
				S6040R			**S6040N**	**40**	**25**	**600**	**5**	**40**	**0.01**	**1**	**2**
				S8040R			**S8040N**	**40**	**25**	**800**	**5**	**40**	**0.02**	**1.5**	**3**
				SK040R			**SK040N**	**40**	**25**	**1000**	**5**	**40**	**0.03**	**5**	
55 A				**S2055R**	**S2055W**	**S2055M**	**S2055N**	**55**	**35**	**200**	**5**	**40**	**0.01**	**1**	**2**
				S4055R	**S4055W**	**S4055M**	**S4055N**	**55**	**35**	**400**	**5**	**40**	**0.01**	**1**	**2**
				S6055R	**S6055W**	**S6055M**	**S6055N**	**55**	**35**	**600**	**5**	**40**	**0.01**	**1**	**2**
				S8055R	**S8055W**	**S8055M**	**S8055N**	**55**	**35**	**800**	**5**	**40**	**0.02**	**1.5**	**3**
				SK055R		**SK055M**	**SK055N**	**55**	**35**	**1000**	**5**	**40**	**0.03**	**5**	
65 A		**S2065J**	**S2065K**					**65**	**41**	**200**	**5**	**50**	**0.02**	**1.5**	**3**
		S4065J	**S4065K**					**65**	**41**	**400**	**5**	**50**	**0.02**	**1.5**	**3**
		S6065J	**S6065K**					**65**	**41**	**600**	**5**	**50**	**0.02**	**1.5**	**3**
		S8065J	**S8065K**					**65**	**41**	**800**	**5**	**50**	**0.02**	**2**	**5**
			SK065K					**65**	**41**	**1000**	**5**	**50**	**0.03**	**5**	
70 A					**S2070W**			**70**	**45**	**200**	**5**	**50**	**0.02**	**1.5**	**3**
					S4070W			**70**	**45**	**400**	**5**	**50**	**0.02**	**1.5**	**3**
					S6070W			**70**	**45**	**600**	**5**	**50**	**0.02**	**1.5**	**3**
					S8070W			**70**	**45**	**800**	**5**	**50**	**0.02**	**2**	**5**

See “General Notes” on page E6 - 2 and “Electrical Specification Notes” on page E6 - 3.

V_{TM}	V_{GT}	I_H	I_{GM}	P_{GM}	$P_{G(AV)}$	I_{TSM}	dv/dt		I^2t	di/dt	t_{gt}	t_q
(3)	(8) (17)	(5) (13)	(12)	(12)		(6) (10) (16)					(7)	(9) (10)
Volts	Volts					Amps	Volts/µSec					
T_C = 25 °C	T_C = 25 °C	mAmps	Amps	Watts	Watts	60/50 Hz	T_C = 100 °C	T_C = 125 °C	$Amps^2Sec$	Amps/µSec	µSec	µSec
MAX	MAX	MAX					MIN	MIN			TYP	MAX
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**450**	**350**	**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**450**	**350**	**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**425**	**325**	**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**400**	**300**	**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**200**		**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**450**	**350**	**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**450**	**350**	**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**425**	**325**	**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**400**	**300**	**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**225/188**	**200**		**210**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**300/255**	**450**	**350**	**374**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**300/255**	**450**	**350**	**374**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**300/255**	**425**	**325**	**374**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**300/255**	**400**	**300**	**374**	**125**	**2**	**35**
1.6	**1.5**	**40**	**3**	**30**	**0.6**	**300/255**	**200**		**374**	**125**	**2**	**35**
1.6	**1.5**	**50**	**3.5**	**35**	**0.8**	**350/300**	**450**	**350**	**510**	**150**	**2**	**35**
1.6	**1.5**	**50**	**3.5**	**35**	**0.8**	**350/300**	**450**	**350**	**510**	**150**	**2**	**35**
1.6	**1.5**	**50**	**3.5**	**35**	**0.8**	**350/300**	**425**	**325**	**510**	**150**	**2**	**35**
1.6	**1.5**	**50**	**3.5**	**35**	**0.8**	**350/300**	**400**	**300**	**510**	**150**	**2**	**35**
1.6	**1.5**	**50**	**3.5**	**35**	**0.8**	**350/300**	**200**		**510**	**150**	**2**	**35**
1.8	**1.5**	**50**	**3.5**	**35**	**0.8**	**500/425**	**450**	**350**	**1035**	**150**	**2**	**35**
1.8	**1.5**	**50**	**3.5**	**35**	**0.8**	**500/425**	**450**	**350**	**1035**	**150**	**2**	**35**
1.8	**1.5**	**50**	**3.5**	**35**	**0.8**	**500/425**	**425**	**325**	**1035**	**150**	**2**	**35**
1.8	**1.5**	**50**	**3.5**	**35**	**0.8**	**500/425**	**400**	**300**	**1035**	**150**	**2**	**35**
1.8	**1.5**	**50**	**3.5**	**35**	**0.8**	**500/425**	**200**		**1035**	**150**	**2**	**35**
1.8	**1.5**	**60**	**3.5**	**35**	**0.8**	**520/430**	**650**	**550**	**1122**	**175**	**2.5**	**35**
1.8	**1.5**	**60**	**3.5**	**35**	**0.8**	**520/430**	**650**	**550**	**1122**	**175**	**2.5**	**35**
1.8	**1.5**	**60**	**3.5**	**35**	**0.8**	**520/430**	**600**	**500**	**1122**	**175**	**2.5**	**35**
1.8	**1.5**	**60**	**3.5**	**35**	**0.8**	**520/430**	**500**	**475**	**1122**	**175**	**2.5**	**35**
1.8	**1.5**	**60**	**3.5**	**35**	**0.8**	**520/430**	**250**		**1122**	**175**	**2.5**	**35**
1.8	**1.5**	**60**	**4**	**40**	**0.8**	**650/550**	**650**	**550**	**1750**	**175**	**2.5**	**35**
1.8	**1.5**	**60**	**4**	**40**	**0.8**	**650/550**	**650**	**550**	**1750**	**175**	**2.5**	**35**
1.8	**1.5**	**60**	**4**	**40**	**0.8**	**650/550**	**600**	**500**	**1750**	**175**	**2.5**	**35**
1.8	**1.5**	**60**	**4**	**40**	**0.8**	**650/550**	**500**	**475**	**1750**	**175**	**2.5**	**35**
1.8	**1.5**	**60**	**4**	**40**	**0.8**	**650/550**	**250**		**1750**	**175**	**2.5**	**35**
1.8	**2**	**80**	**5**	**50**	**1**	**950/800**	**650**	**550**	**3745**	**200**	**2.5**	**35**
1.8	**2**	**80**	**5**	**50**	**1**	**950/800**	**650**	**550**	**3745**	**200**	**2.5**	**35**
1.8	**2**	**80**	**5**	**50**	**1**	**950/800**	**600**	**500**	**3745**	**200**	**2.5**	**35**
1.8	**2**	**80**	**5**	**50**	**1**	**950/800**	**500**	**475**	**3745**	**200**	**2.5**	**35**
1.8	**2**	**80**	**5**	**50**	**1**	**950/800**	**250**		**3745**	**200**	**2.5**	**35**
1.8	**2**	**80**	**5**	**50**	**1**	**950/800**	**650**	**550**	**3745**	**200**	**2.5**	**35**
1.8	**2**	**80**	**5**	**50**	**1**	**950/800**	**650**	**550**	**3745**	**200**	**2.5**	**35**
1.8	**2**	**80**	**5**	**50**	**1**	**950/800**	**600**	**500**	**3745**	**200**	**2.5**	**35**
1.8	**2**	**80**	**5**	**50**	**1**	**950/800**	**500**	**475**	**3745**	**200**	**2.5**	**35**

See “General Notes” on page E6 - 2 and “Electrical Specification Notes” on page E6 - 3.

Thermal Resistance (Steady State) $R_{\theta JC}$ [$R_{\theta JA}$] °C/W (TYP.)											
Pkg. Code	L	F	F2	R	J	W	K	M	D	V	N
Type	 TO-220 Isolated	 TO-202 Type 1 Non-isolated	 TO-202 Type 2 Non-isolated	 TO-220 Non-isolated	 TO-218X Isolated	 TO-218X Non-isolated	 TO-218 Isolated	 TO-218 Non-isolated	 TO-252 D-Pak Surface Mount	 TO-251AA V-Pak Non-isolated	 TO-263 D^2Pak Non-isolated
1 A	**See below**										
6 A	**4.0 [50]**	**4.3 [45]**	**9.5 [70]**						**1.7**	**2.3 [70]**	
8 A	**3.4**	**3.9**		**1.8 [40]**					**1.5**	**2.0**	
10 A	**3.0**	**3.4**		**1.6**					**1.45**	**1.7**	
12 A				**1.5**					**1.4**	**1.6**	
15 A	**2.5**										
16 A				**1.3**							**1.3**
20 A	**2.4**										
25 A	**2.35**			**1.0**							**1.0**
35 A					**0.70**		**0.70**				
40 A				**0.6**							**0.6**
55 A				**0.5**		**0.53**		**0.53**			**0.5**
65 A					**0.86**		**0.86**				
70 A						**0.60**					

Thermal Resistance (Steady State) $R_{\theta JC}$ [$R_{\theta JA}$] °C/W (TYP.)		
Package Code	C	E
Type	 Compak	 TO-92
1 A	**35 ***	**50 [145]**

* Mounted on 1cm^2 copper foil surface; two-ounce copper foil

Electrical Isolation

Teccor's isolated SCR packages will withstand a minimum high potential test of 2500 V ac rms from leads to mounting tab over the device's operating temperature range. The following table shows standard and optional isolation ratings.

Electrical Isolation * from Leads to Mounting Tab			
V AC RMS	**TO-220 Isolated**	**TO-218X Isolated**	**TO-218 Isolated**
2500	**Standard**	**Standard**	**Standard**
4000	**Optional ****	**N/A**	**N/A**

* UL Recognized File #E71639

** For 4000 V isolation, use "V" suffix in part number.

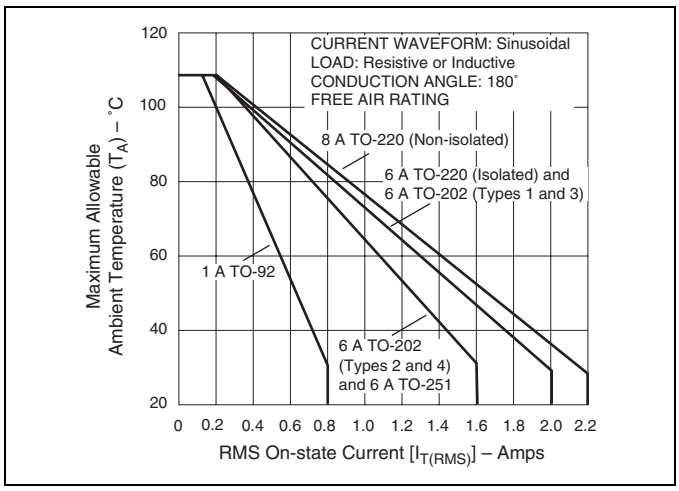


Figure E6.1 Maximum Allowable Ambient Temperature versus RMS On-state Current

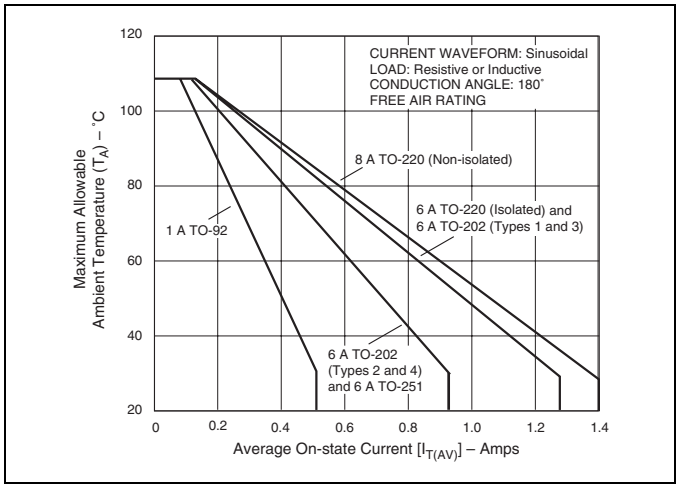


Figure E6.2 Maximum Allowable Ambient Temperature versus Average On-state Current

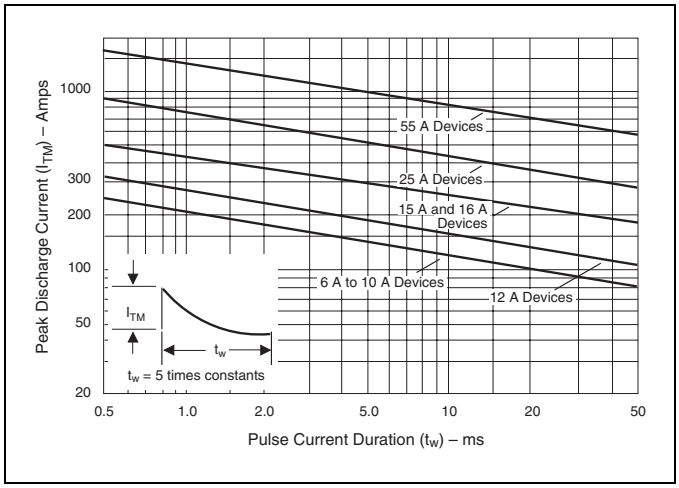


Figure E6.3 Peak Capacitor Discharge Current (6 A through 55 A)

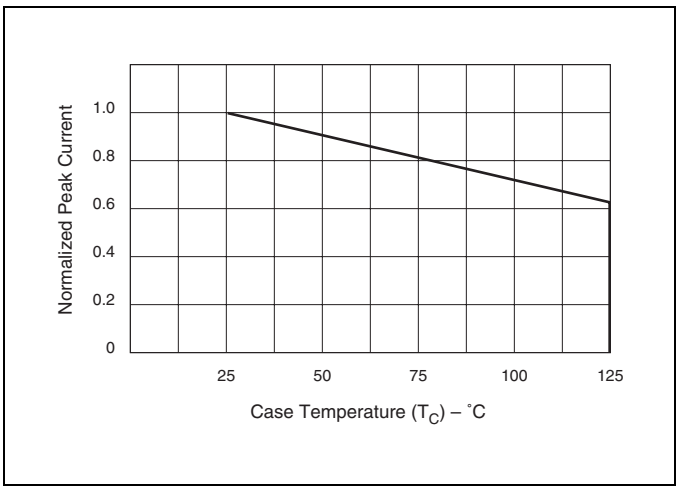


Figure E6.4 Peak Capacitor Discharge Current Derating (6 A through 55 A)

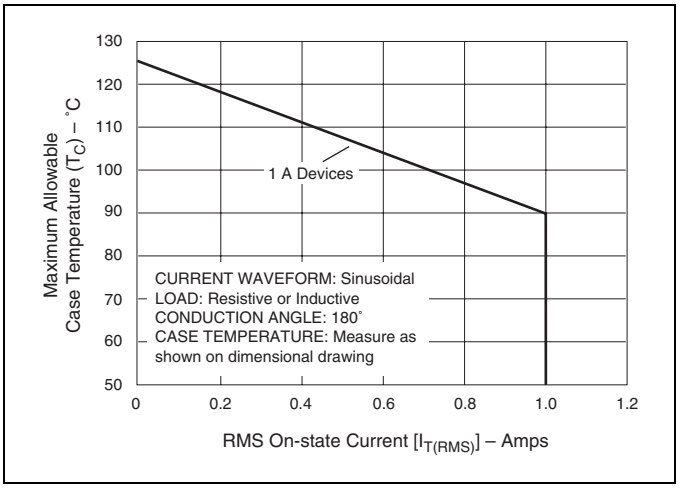


Figure E6.5 Maximum Allowable Case Temperature versus RMS On-state Current (1 A)

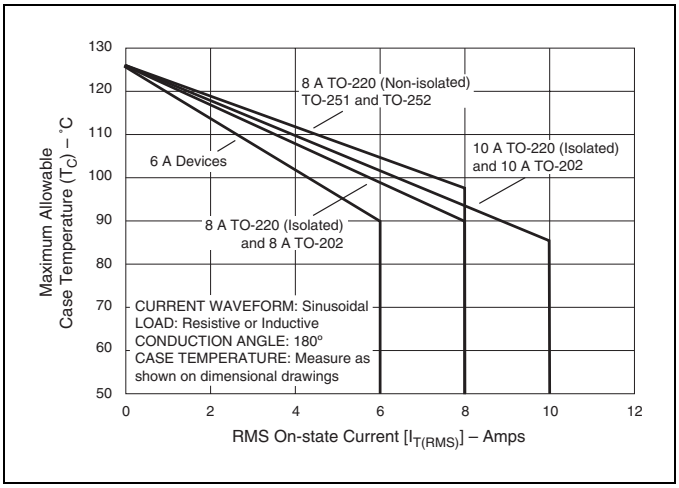


Figure E6.6 Maximum Allowable Case Temperature versus RMS On-state Current (6 A, 8 A, and 10 A)

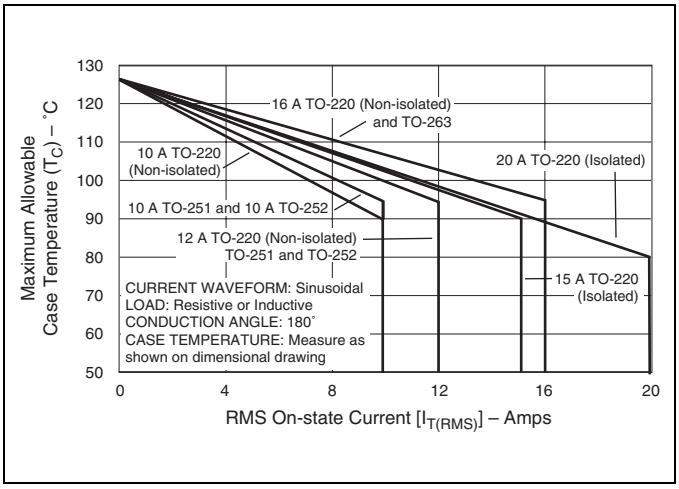


Figure E6.7 Maximum Allowable Case Temperature versus RMS On-state Current (10 A, 12 A, 16 A, and 20 A)

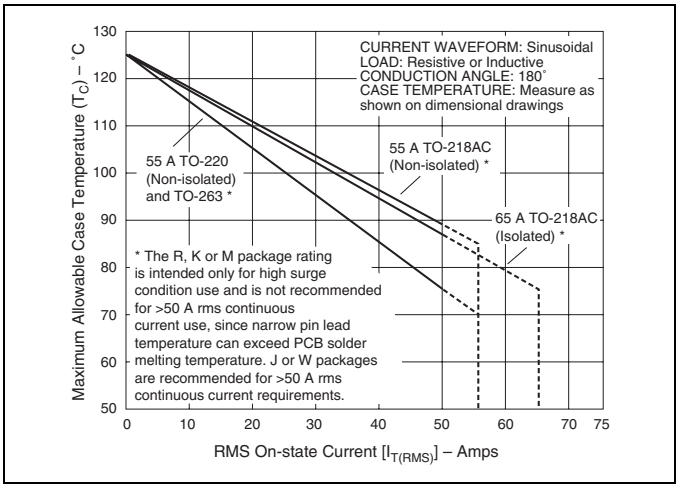


Figure E6.10 Maximum Allowable Case Temperature versus RMS On-state Current (55 A and 65 A)

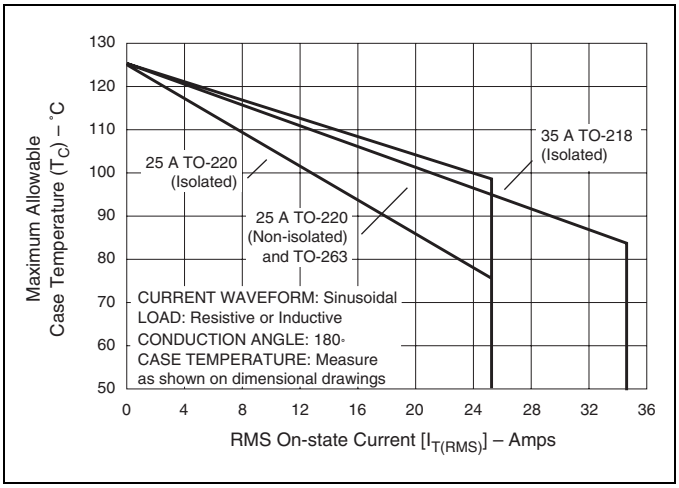


Figure E6.8 Maximum Allowable Case Temperature versus RMS On-state Current (25 A and 35 A)

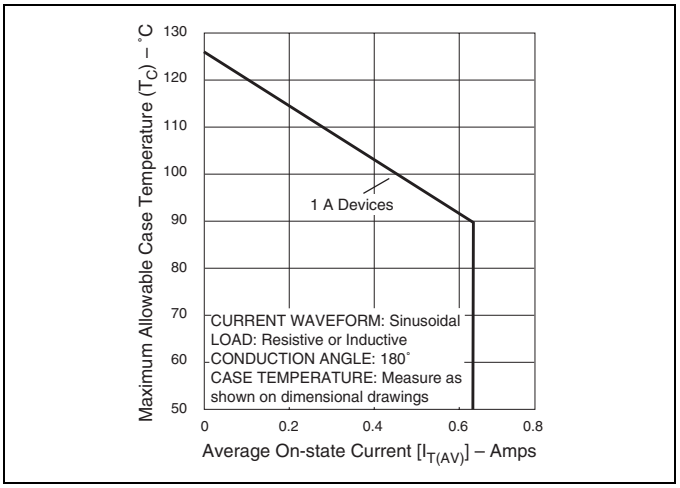


Figure E6.11 Maximum Allowable Case Temperature versus Average On-state Current (1 A)

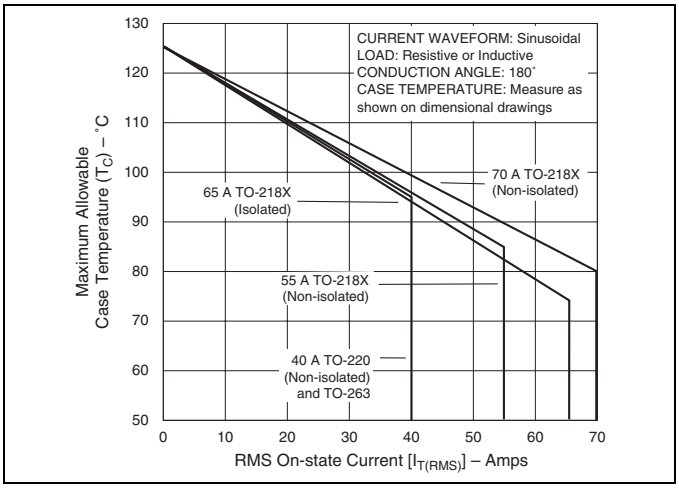


Figure E6.9 Maximum Allowable Case Temperature versus RMS On-state Current (40 A through 70 A)

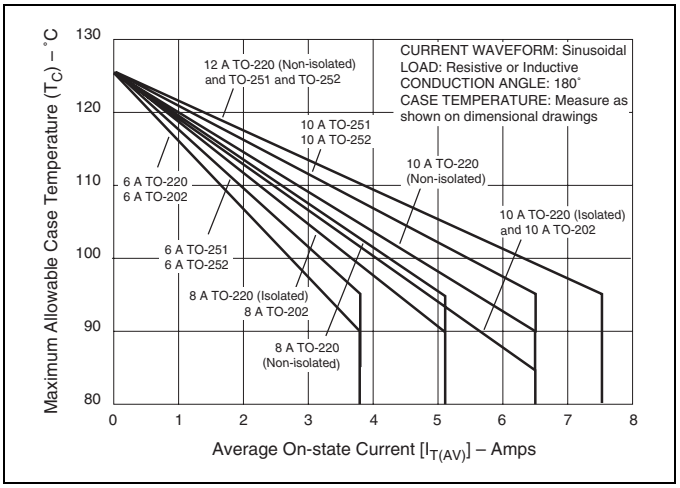


Figure E6.12 Maximum Allowable Case Temperature versus Average On-state Current (8 A, 10 A, and 12 A)

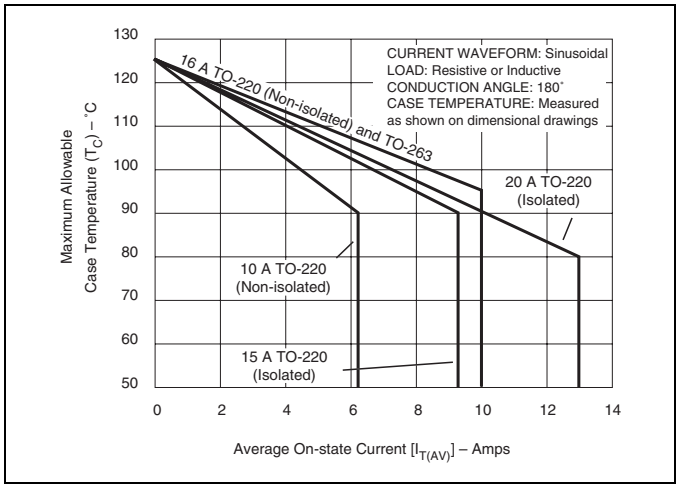


Figure E6.13 Maximum Allowable Case Temperature versus Average On-state Current (10 A through 20 A)

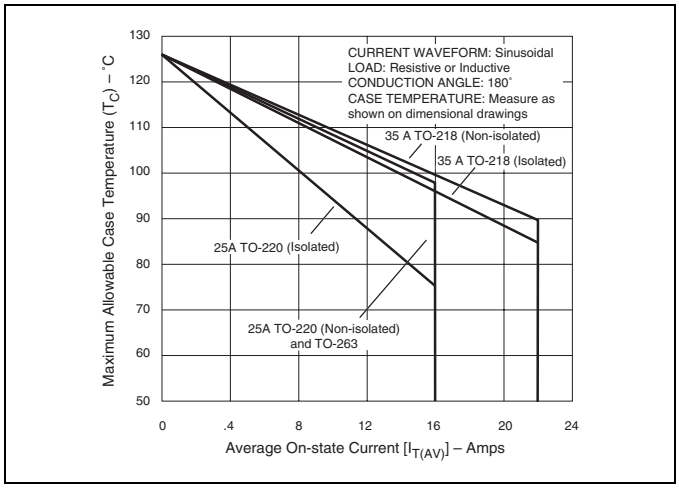


Figure E6.14 Maximum Allowable Case Temperature versus Average On-state Current (25 A and 35 A)

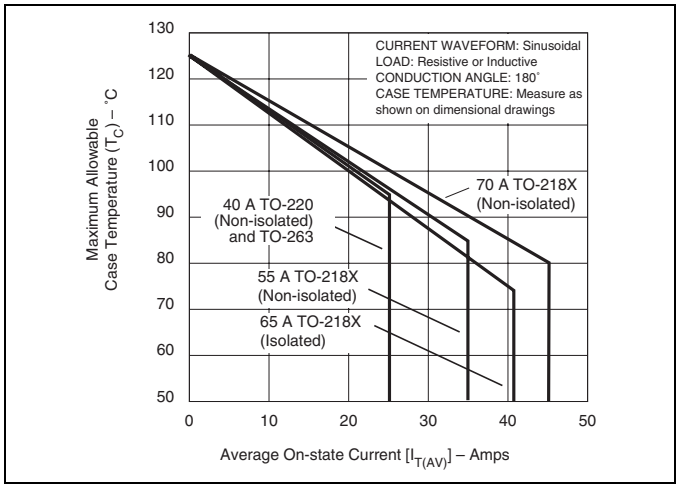


Figure E6.15 Maximum Allowable Case Temperature versus Average On-state Current (40 A through 70 A)

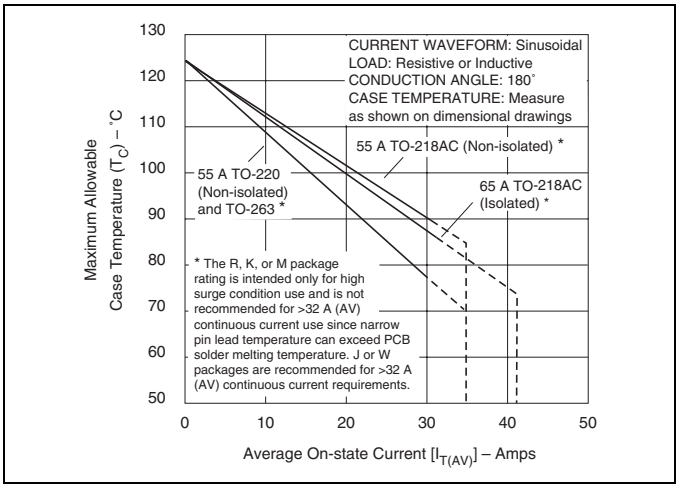


Figure E6.16 Maximum Allowable Case Temperature versus Average On-state Current (55 A and 65 A)

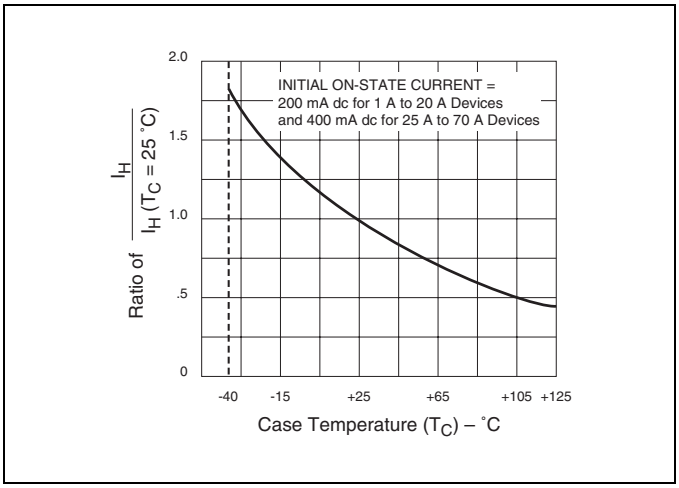


Figure E6.17 Normalized dc Holding Current versus Case Temperature

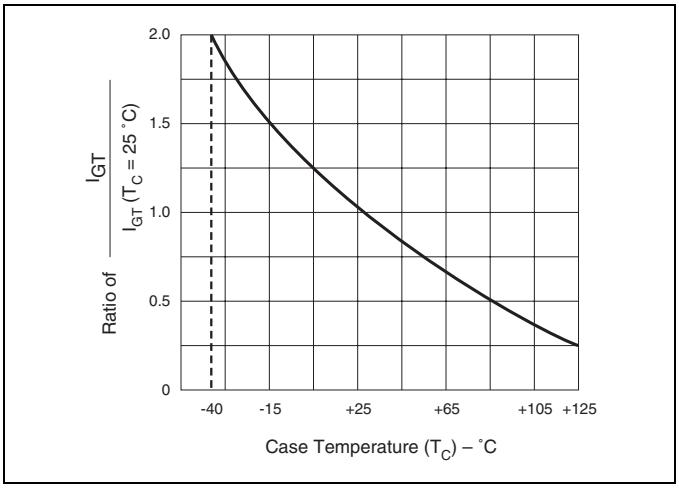


Figure E6.18 Normalized DC Gate-Trigger Current versus Case Temperature

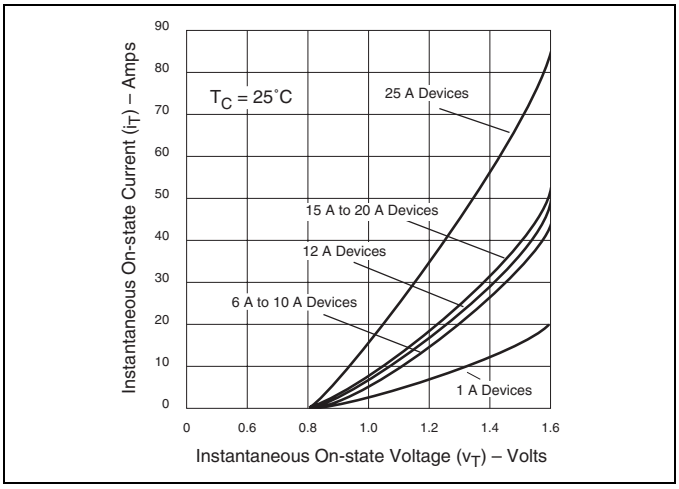


Figure E6.19 Instantaneous On-state Current versus On-state Voltage (Typical) (6 A through 25 A)

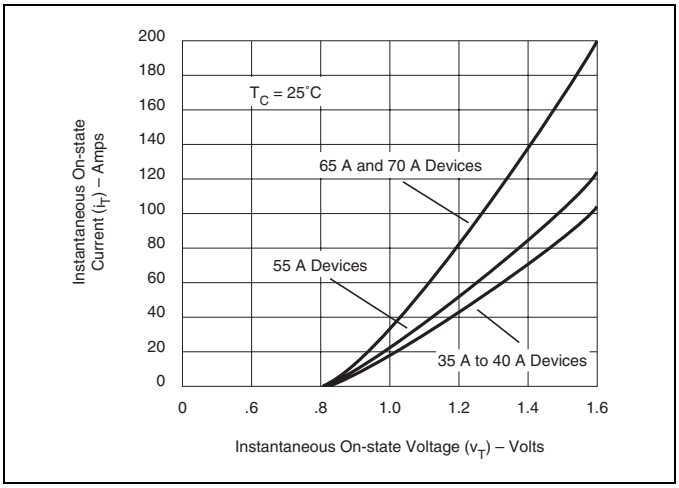


Figure E6.20 Instantaneous On-state Current versus On-state Voltage (Typical) (35 A through 70 A)

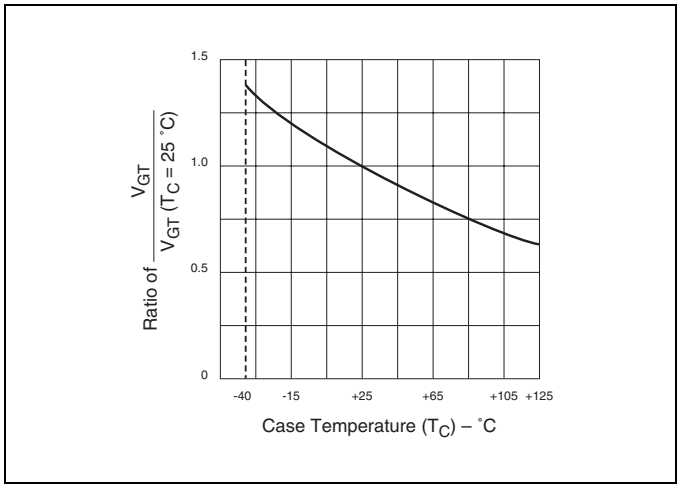


Figure E6.21 Normalized DC Gate-trigger Voltage versus Case Temperature

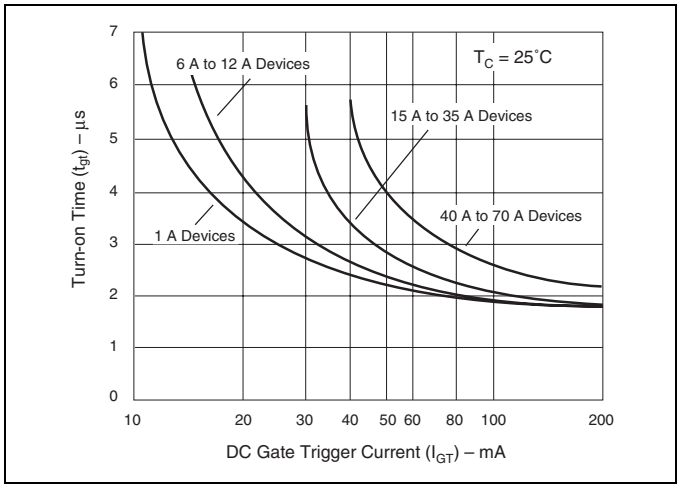


Figure E6.22 Typical Turn-on Time versus Gate-trigger Current

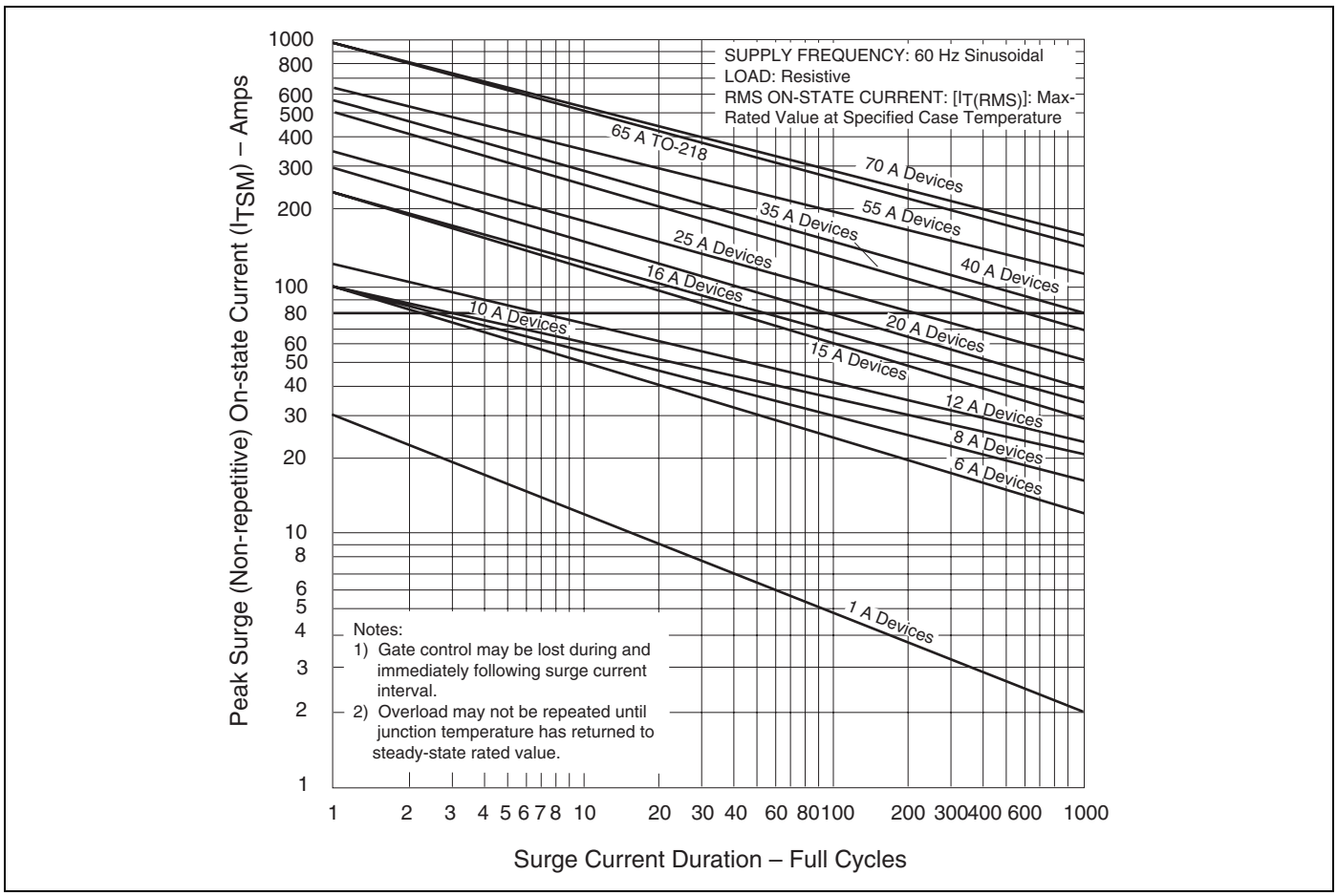


Figure E6.23 Peak Surge Current versus Surge Current Duration

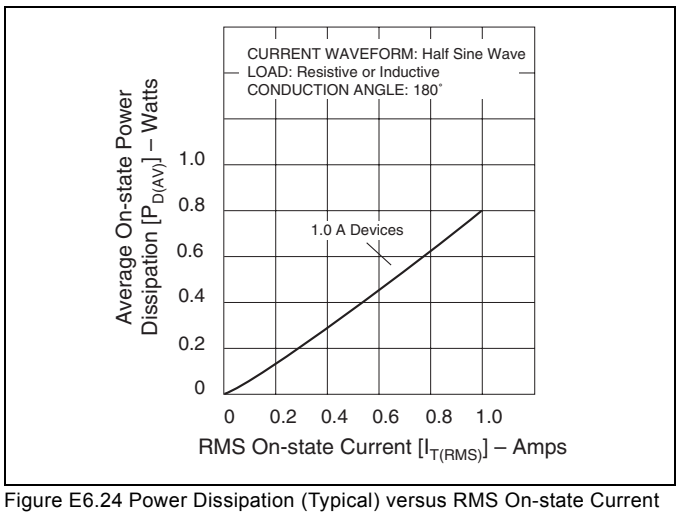


Figure E6.24 Power Dissipation (Typical) versus RMS On-state Current (1 A)

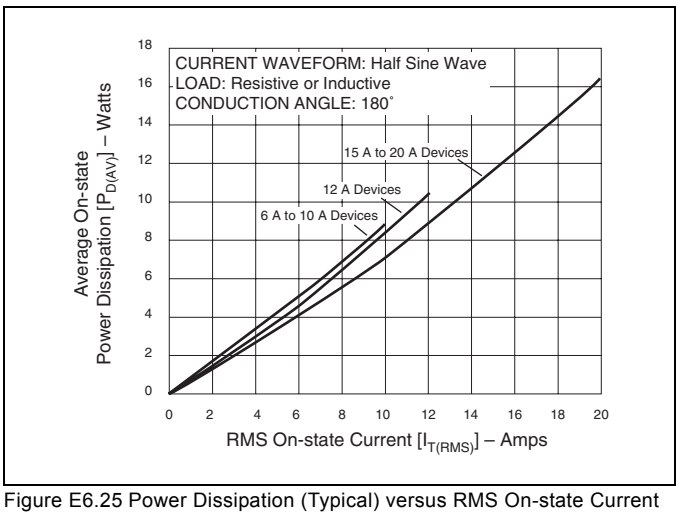


Figure E6.25 Power Dissipation (Typical) versus RMS On-state Current (6 A through 20 A)

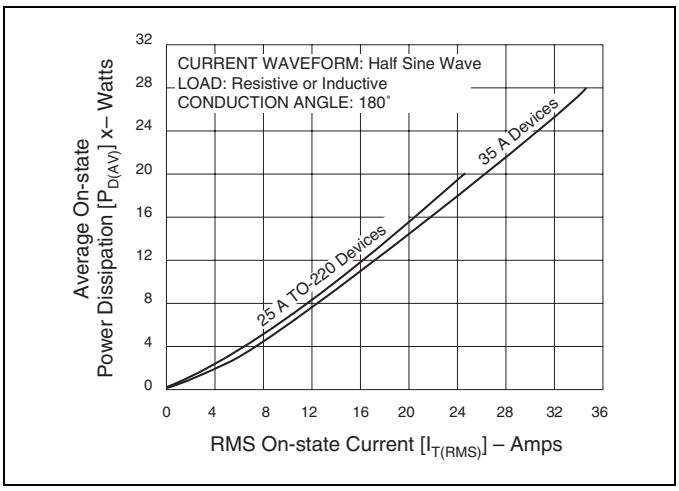


Figure E6.26 Power Dissipation (Typical) versus RMS On-state Current (25 A and 35 A)

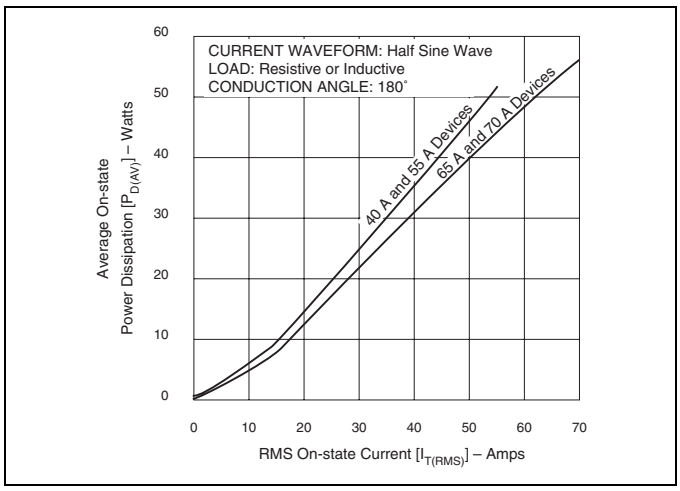


Figure E6.27 Power Dissipation (Typical) versus RMS On-state Current (40 A through 70 A)