

Hermetic Triacs

6A to 40A RMS Up to 600 Volts

STUD/ TO-3 FLANGE
SC240
SC245
SC250
SC260
SC265

PRESS-FIT
SC241
SC246
SC251
SC261
SC266

MAXIMUM ALLOWABLE RATINGS

TYPE	RMS ON-STATE CURRENT $I_T(RMS)$ (1) AMPERES	REPETITIVE PEAK OFF-STATE VOLTAGE, V_{DRM} (2)				PEAK ONE FULL CYCLE SURGE (NON-REP) ON-STATE CURRENT, I_{TSM} AMPERES		I^2t FOR FUSING FOR TIMES AT (3)	
		B	D	E	M	50 Hz	60 Hz	(RMS AMPERE) ² SECONDS, 1.0 MILLISECONDS	(RMS AMPERE) ² SECONDS, 8.3 MILLISECONDS
SC240/241	6	200	400	500	600	74	80	18	26.5
SC245/246	10	200	400	500	600	90	100	20	41.5
SC250/251	15	200	400	500	600	90	100	20	41.5
SC260/261	25	200	400	500	600	230	250	150	260.0
SC265/266	40	200	400	500	600	275	300	300	375.0

Peak Gate Power Dissipation, P_{GM} (4)

SC240/SC241, SC245/SC246, SC250/SC251, SC260/SC261 10 Watts for 10 Microseconds (See Figure 5A)

SC265/SC266 10 Watts for 20 Microseconds (See Figure 5B)

Average Gate Power Dissipation, $P_{G(AV)}$ 0.5 Watts

Peak Gate Current, I_{GM} (4) (See Figures 6A, 6B, 6C)

Peak Gate Voltage, V_{GM} (4) (See Figures 6A, 6B, 6C)

Storage Temperature, T_{STG} -40°C to +125°C

Operating Temperature, T_J -40°C to +100°C

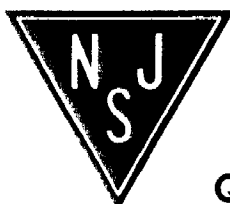
SC240/SC241, SC245/SC246 -40°C to +115°C

SC250/SC251, SC260/SC261, SC265/SC266 25 Lb.-In. (29 Kg-Cm) (2.8 N-M)

Stud Torque (Isolated and Non-Isolated Stud Types) (3.56 N x 10³) 800 Lbs. (364 Kg)

Insertion Pressure (Press-Fit Types) 1800 Volts RMS

Surge Isolation Voltage (5)



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Quality Semi-Conductors

STUD/TO-3 FLANGE	PRESS-FIT
SC240, 45, 50, 60, 65	SC241, 46, 51, 61, 66

CHARACTERISTICS

TEST	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS	REF. NOTE
Repetitive Peak Off-State Current	I_{DRM}				mA	V_{DRM} = Maximum Allowable Repetitive Peak Off-State Voltage Rating. Gate Open Circuited.	1
SC240/SC241		—	—	0.1		$T_C = +25^\circ\text{C}$	
SC245/SC246		—	—	0.5		$T_C = T_J$ (Max.)	
SC250/SC251							
SC260/SC261		—	—	0.2		$T_C = +25^\circ\text{C}$	
SC265/SC266		—	—	1.0		$T_C = T_J$ (Max.)	
Peak On-State Voltage	V_{TM}	—	—		Volts	$T_C = +25^\circ\text{C}$, $I_{TM} = 1$ msec., Wide Pulse. Duty Cycle $\leq 2\%$.	1
SC240/SC241				1.83		$I_{TM} = 8.5$ A Peak	
SC245/SC246				1.65		$I_{TM} = 14$ A Peak	
SC250/SC251				1.65		$I_{TM} = 21$ A Peak	
SC260/SC261				1.58		$I_{TM} = 35$ A Peak	
SC265/SC266				1.38		$I_{TM} = 56$ A Peak	
Critical Rate-of-Rise of Off-State Voltage (Higher Values May Cause Device Switching.)	dv/dt				Volts/ μsec	$T_C = T_J$ Max. Rated V_{DRM} . Gate Open Circuited. Exponential Voltage Waveform.	1
SC240/SC241		30	100	—			
SC245/SC246		100	150	—			
SC250/SC251		100	250	—			
SC260/SC261		50	150	—			
SC265/SC266		50	150	—			
Critical Rate-of-Rise of Commutating Off-State Voltage (Commutating dv/dt)	$dv/dt_{(c)}$				Volts/ μsec	$I_{T(RMS)}$ = Rated Maximum Allowable RMS On-State Current, V_{DRM} = Maximum Rated Peak Off-State Voltage. Gate Open Circuited.	1,7
SC240/SC241		4	—	—			
SC245/SC246		4	—	—			
SC250/SC251		4	—	—			
SC260/SC261		5	—	—			
SC265/SC266		5	—	—			
DC Gate Trigger Current	I_{GT}				mAdc	$V_D = 12\text{Vdc}$	2
						TRIGGER MODE	
						R_L	
						T_C	
SC240/SC241		—	—	50		MT2+ Gate+	100 Ohms
SC245/SC246		—	—	50		MT2- Gate-	100 Ohms
SC250/SC251		—	—	50		MT2+ Gate-	50 Ohms
SC260/SC261		—	—	80		MT2+ Gate+	50 Ohms
		—	—	80		MT2- Gate-	50 Ohms
		—	—	80		MT2+ Gate-	25 Ohms
SC265/SC266		—	—	80		MT2+ Gate+	100 Ohms
		—	—	80		MT2- Gate-	100 Ohms
		—	—	80		MT2+ Gate-	50 Ohms
		—	—	120		MT2+ Gate+	50 Ohms
		—	—	120		MT2- Gate-	50 Ohms
		—	—	120		MT2+ Gate-	25 Ohms

STUD/TO-3 FLANGE	PRESS-FIT
SC240, 45, 50, 60, 65	SC241, 46, 51, 61, 66

TEST	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS	REF. NOTE
SC260/SC261	$R_{\theta JC}$	-	-	1.80	°C/Watt	Non-Isolated Stud/Press-Fit	1,5
		-	-	1.95		Isolated Stud	
		-	-	1.95		Non-Isolated TO-3 Flange	
		-	-	2.10		Isolated TO-3 Flange	
		-	-	1.00		Non-Isolated Stud/Press-Fit	
		-	-	1.15		Isolated Stud	
		-	-	1.15		Non-Isolated TO-3 Flange	
		-	-	1.30		Isolated TO-3 Flange	
Apparent Thermal Resistance	$R_{\theta JC(AC)}$				°C/Watt	Junction-to-Case. This characteristic is useful in the calculation of junction temperature rise above case temperature for AC current conduction.	6
SC240/SC241		-	-	2.00		Non-Isolated Stud/Press-Fit	
		-	-	2.20		Isolated Stud	
		-	-	2.20		Non-Isolated TO-3 Flange	
		-	-	2.40		Isolated TO-3 Flange	
SC245/SC246		-	-	1.50		Non-Isolated Stud/Press-Fit	
		-	-	1.65		Isolated Stud	
		-	-	1.65		Non-Isolated TO-3 Flange	
		-	-	1.80		Isolated TO-3 Flange	
SC250/SC251		-	-	1.45		Non-Isolated Stud/Press-Fit	
		-	-	1.60		Isolated Stud	
		-	-	1.60		Non-Isolated TO-3 Flange	
		-	-	1.75		Isolated TO-3 Flange	
SC260/SC261		-	-	1.25		Non-Isolated Stud/Press-Fit	
		-	-	1.40		Isolated Stud	
		-	-	1.40		Non-Isolated TO-3 Flange	
		-	-	1.55		Isolated TO-3 Flange	
SC265/SC266		-	-	0.80		Non-Isolated Stud/Press-Fit	
		-	-	0.95		Isolated Stud	
		-	-	0.95		Non-Isolated TO-3 Flange	
		-	-	1.10		Isolated TO-3 Flange	

NOTES:

1. Characteristic values apply for either polarity of main terminal 2 referenced to main terminal 1.
2. Main terminal 1 is the reference terminal for main terminal 2 and gate terminal.
3. With V_D equal to maximum allowable off-state voltage.
4. The junction-to-ambient value is under worst case conditions; i.e., with No. 22 copper wire used for electrical contact to the terminals and natural convection cooling.
5. Junction-to-case steady-state thermal resistance ($R_{\theta JC}$) is tested in accordance with EIA-NEMA Standard RS-397, Section 3.3.2, which states: "Thermal characteristics are to be measured with the device operating in only one direction." The values listed are the limiting value for either direction.
6. Apparent thermal resistance applies for a 50 or 60 Hz full sine wave of current. It can be calculated with the following formula:

$$\text{Apparent thermal resistance} = \frac{T_{J(\max)} - T_C}{P_{T(AV)}}$$

where: $T_{J(\max)}$ = maximum junction temperature
 T_C = case temperature
 $P_{T(AV)}$ = average on-state power

7. Values for these test conditions are:

Device	Package	Commutating di/dt	T_C (°C)
SC240/SC241	Non-Isolated Stud/Press-Fit	3.2 A/msec.	82
	Isolated Stud		80
	Non-Isolated TO-3 Flange		80
	Isolated TO-3 Flange		79
SC245/SC246	Non-Isolated Stud/Press-Fit	5.4 A/msec.	80
	Isolated Stud		78
	Non-Isolated TO-3 Flange		78
	Isolated TO-3 Flange		76
SC250/SC251	Non-Isolated Stud/Press-Fit	8.0 A/msec.	86
	Isolated Stud		83
	Non-Isolated TO-3 Flange		83
	Isolated TO-3 Flange		80
SC260/SC261	Non-Isolated Stud/Press Fit	13.5 A/msec.	80
	Isolated Stud		75
	Non-Isolated TO-3 Flange		75
	Isolated TO-3 Flange		71
SC265/SC266	Non-Isolated Stud/Press-Fit	21.5 A/msec.	81
	Isolated Stud		74
	Non-Isolated TO-3 Flange		74
	Isolated TO-3 Flange		68

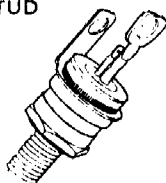
SIX BASIC PACKAGES

- Other packages available upon request.

PRESS-FIT

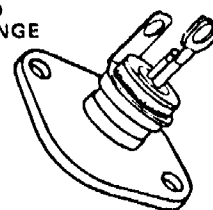


ISOLATED STUD With Press-on MT2 Terminal



TYPE 2

ISOLATED TO-3 FLANGE



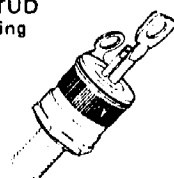
TYPE 4

NON-ISOLATED STUD



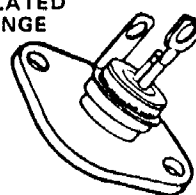
TYPE 1

ISOLATED STUD With Solder Ring MT2 Terminal



TYPE 3

NON-ISOLATED TO-3 FLANGE



TYPE 5