

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Repetitive peak off-stage voltage, gate open			
SC146B	V_{DRM}	200	Volts
SC146D		400	
SC146E		500	
SC146M		600	
SC146N		700	
RMS on-state current ($T_C = 80^\circ\text{C}$)		$I_{T(RMS)}$	
Peak non-repetitive surge current (One Cycle, 60Hz)	I_{TSM}	120	Amps
Circuit fusing considerations ($t = 8.3\text{ms}$)	I^2t	60	A^2s
Peak gate power (pulse width = $10\mu\text{s}$)	P_{GM}	10	Watts
Average gate power ($T_C = 80^\circ\text{C}$, $t = 8.3\text{ms}$)	$P_{G(AV)}$	0.5	Watts
Peak gate current (pulse width = $10\mu\text{s}$)	I_{GM}	3.5	Amps
Peak gate voltage	V_{GM}	10	Volts
Operating junction temperature range	T_J	-40 to +100	$^\circ\text{C}$
Storage temperature range	T_{stg}	-40 to +125	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Thermal resistance, junction to case	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$

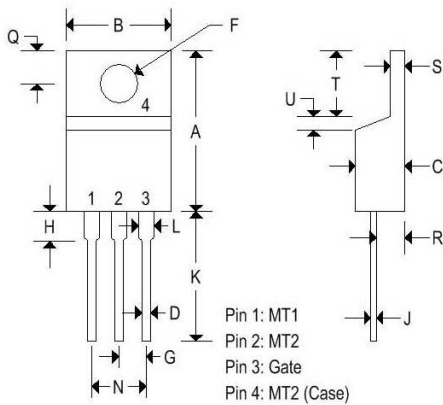
ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ and either polarity of MT2 to MT1 voltage unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak off state current ($V_D = V_{DRM}$, gate open) $T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	I_{DRM}	-	-	0.1 0.5	mA
Peak on-state voltage ($I_{TM} = 14\text{A}$ peak, pulse width $\leq 1\text{ms}$, duty cycle $\leq 2\%$)	V_{TM}	-	-	1.65	Volts
Critical rate of rise of off-state voltage ($V_D = \text{Rated } V_{DRM}$, gate open, exponential waveform, $T_C = 100^\circ\text{C}$)	dv/dt	-	50	-	$\text{V}/\mu\text{s}$
Critical rate of rise of commutating voltage ($I_{T(RMS)} = \text{Rated } I_{T(RMS)}$, $V_D = \text{Rated } V_{DRM}$, commutating $di/dt = 5.4\text{A/ms}$, gate open, $T_C = 80^\circ\text{C}$)	$dv/dt(c)$	4	-	-	$\text{V}/\mu\text{s}$
DC gate trigger current (continuous dc) ($V_D = 12\text{V}$, trigger mode) MT2(+), G(+); MT2(-), G(-); $R_L = 100\Omega$ MT2(+), G(-); $R_L = 50\Omega$ MT2(+), G(+); MT2(-), G(-); $R_L = 50\Omega$, $T_C = -40^\circ\text{C}$ MT2(+), G(-); $R_L = 25\Omega$, $T_C = -40^\circ\text{C}$	I_{GT}	-	-	50 50 80 80	mA

DC gate trigger voltage (continuous dc) $(V_D = 12V, \text{trigger mode})$ MT2(+), G(+); MT2(-), G(-); $R_L = 100\Omega$ MT2(+), G(-); $R_L = 50\Omega$ MT2(+), G(+); MT2(-), G(-); $R_L = 50\Omega, T_C = -40^\circ C$ MT2(+), G(-); $R_L = 25\Omega, T_C = -40^\circ C$ $(V_D = \text{Rated } V_{DRM}, R_L = 1000\Omega, T_C = 100^\circ C)$ all polarities	V_{GT}	-	-	2.5	Volts
		-	-	2.5	
		-	-	3.5	
		-	-	3.5	
		0.2	-	-	
Holding current $(V_D = 24V, I_T = 0.5A, \text{pulse width} = 1\text{ms}, \text{duty cycle} \leq 2\%,$ gate trigger source 7V, 20 Ω) $T_C = 25^\circ C$ $T_C = -40^\circ C$	I_H				mA
		-	-	50	
		-	-	100	
Latching current $(V_D = 24V)$ Trigger source: 15V, 100 Ω , trigger mode) MT2(+), G(+); MT2(-), G(-) MT2(+), G(-) MT2(+), G(+); MT2(-), G(-), $T_C = -40^\circ C$ MT2(+), G(-), $T_C = -40^\circ C$	I_L				mA
		-	-	100	
		-	-	200	
		-	-	200	
		-	-	400	

MECHANICAL CHARACTERISTICS

Case	TO-220AB
Marking	Alpha-numeric
Pin out	See below



	TO-220AB			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.575	0.620	14.600	15.750
B	0.360	0.405	9.650	10.290
C	0.160	0.190	4.060	4.820
D	0.025	0.035	0.640	0.890
F	0.142	0.147	3.610	3.730
G	0.095	0.105	2.410	2.670
H	0.110	0.155	2.790	3.930
J	0.014	0.022	0.360	0.560
K	0.500	0.562	12.700	14.270
L	0.045	0.055	1.140	1.390
N	0.190	0.210	4.830	5.330
Q	0.100	0.120	2.540	3.040
R	0.080	0.110	2.040	2.790
S	0.045	0.055	1.140	1.390
T	0.235	0.255	5.970	6.460
U	-	0.050	-	1.270
V	0.045	-	1.140	-
Z	-	0.080	-	2.030

SC146

SILICON BIDIRECTIONAL THYRISTORS

