

TECHNICAL DATA  
DATA SHEET 1006, REV. -  
Formerly part number -SHSMG1009

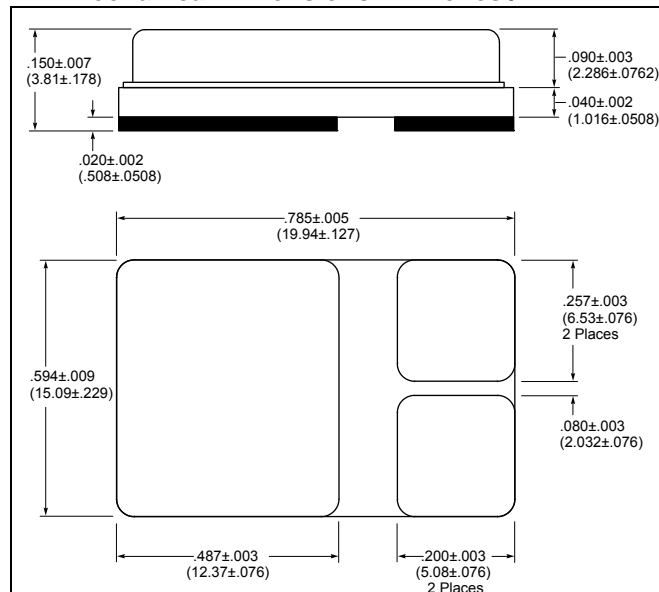
**600 VOLT, 40 AMP IGBT DEVICE**  
**HIGH SPEED, IMPROVED SCSOA**

**ELECTRICAL CHARACTERISTICS**

(T<sub>j</sub>=25°C UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
<b>IGBT SPECIFICATIONS</b>					
Collector to Emitter Breakdown Voltage I <sub>C</sub> = 250 μA, V <sub>GE</sub> = 0V	BV <sub>CES</sub>	600	-	-	V
Continuous Collector Current T <sub>C</sub> = 25 °C T <sub>C</sub> = 90 °C	I <sub>C</sub>	-	-	40 <sup>(1)</sup> 40	A
Pulsed Collector Current, 1mS	I <sub>CM</sub>	-	-	130	A
Short Circuit time, V <sub>GE</sub> = 15V, V <sub>CE</sub> = 500V, T <sub>j</sub> = 125 °C di/dt < 300 A/μsec, I <sub>C</sub> < 300A	t <sub>sc</sub>	-	-	10	μsec
Gate to Emitter Voltage	V <sub>GE</sub>	-	-	+/-20	V
Gate-Emitter Leakage Current, V <sub>GE</sub> = +/-20V	I <sub>GES</sub>	-	-	+/- 100	nA
Gate Threshold Voltage, I <sub>C</sub> =2mA	V <sub>GE(TH)</sub>	4.0	-	7.0	V
Zero Gate Voltage Collector Current V <sub>CE</sub> = 600 V, V <sub>GE</sub> =0V T <sub>i</sub> =25°C V <sub>CE</sub> = 480 V, V <sub>GE</sub> =0V T <sub>i</sub> =125°C	I <sub>CES</sub>	- -	- -	0.25 3.0	Ma mA
Collector to Emitter Saturation Voltage, I <sub>C</sub> = 40A, V <sub>GE</sub> = 15V, T <sub>C</sub> = 25 °C T <sub>C</sub> = 125 °C	V <sub>CE(SAT)</sub>	-	2.0 2.3	2.3 2.5	V
Input Capacitance Output Capacitance Reverse Transfer Cap. V <sub>CE</sub> = 25 V, V <sub>GE</sub> = 0 V, f = 1 MHz	C <sub>ies</sub> C <sub>oes</sub> C <sub>res</sub>	-	2800 300 200	-	pF
Turn On Delay Time Rise Time Turn Off Delay Time Fall Time Turn off Energy Loss (T <sub>j</sub> = 125 °C, I <sub>C</sub> = 40A, V <sub>GE</sub> = 15V, inductive load, V <sub>CC</sub> = 300 V, R <sub>G</sub> = 22 Ω	t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub> E <sub>off</sub> E <sub>on</sub>	- - - -	100 50 300 40 1.5 2.0	- - - -	nsec mJ mJ
Maximum Thermal Resistance	R <sub>θJC</sub>	-	-	0.60	°C/W

- (1) Current is limited by package leads. Die current rating is 65A.
- (2) Current is limited by package leads. Die current rating is 75A.
- (3) Current is limited by package leads. Die current rating is 50A.

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**Mechanical Dimensions: In Inches / mm**

**SHD-6**
**Schematic Diagram**

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