

TECHNICAL DATA  
DATA SHEET 1004, REV. A  
*Formerly part number SHDG1025*

**1200 VOLT, 35 AMP IGBT DEVICE**  
**HIGH SPEED, IMPROVED SCSOA**  
**WITH FAST REVERSE RECOVERY DIODE**

**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>	-	-	1200	V
Continuous Collector Current T <sub>C</sub> = 25 °C T <sub>C</sub> = 90 °C	I <sub>C</sub>	-	-	40 <sup>(1)</sup> 35	A
Gate to Emitter Voltage	V <sub>GE</sub>	-	-	+/-20	V
Gate-Emitter Leakage Current I <sub>GE</sub> = +/-20V	I <sub>GES</sub>	-	-	+/-500	nA
Gate Threshold Voltage, I <sub>C</sub> =2mA	V <sub>GE(TH)</sub>	4.5	6.0	7.5	V
Zero Gate Voltage Collector Current V <sub>GE</sub> =0V V <sub>CE</sub> = 1200 V, T <sub>i</sub> =25°C V <sub>CE</sub> = 800 V, T <sub>i</sub> =125°C	I <sub>CES</sub>	-	-	1000 5.0	μA mA
Collector to Emitter Saturation Voltage I <sub>C</sub> = 35A, V <sub>GE</sub> = 15V	V <sub>CE(SAT)</sub>	-	2.7	3.3	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>	-	8400 350 90	-	pF
Turn On Delay Time Rise Time Turn Off Delay Time Fall Time Turn-off Energy Loss Turn-on Energy Loss (I <sub>C</sub> = 30A, V <sub>GE</sub> = 15V, V <sub>CE</sub> = 600 V, R <sub>G</sub> = 5 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>	- - - -	90 50 270 80 4.7 5.5	- - - -	nsec mJ mJ
Junction-to-Case Thermal Resistance	R <sub>θJC</sub>	-	-	0.35	°C/W

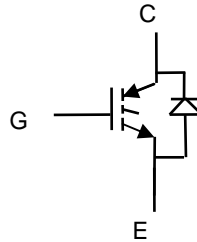
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**ULTRAFAST DIODE RATINGS AND CHARACTERISTICS**

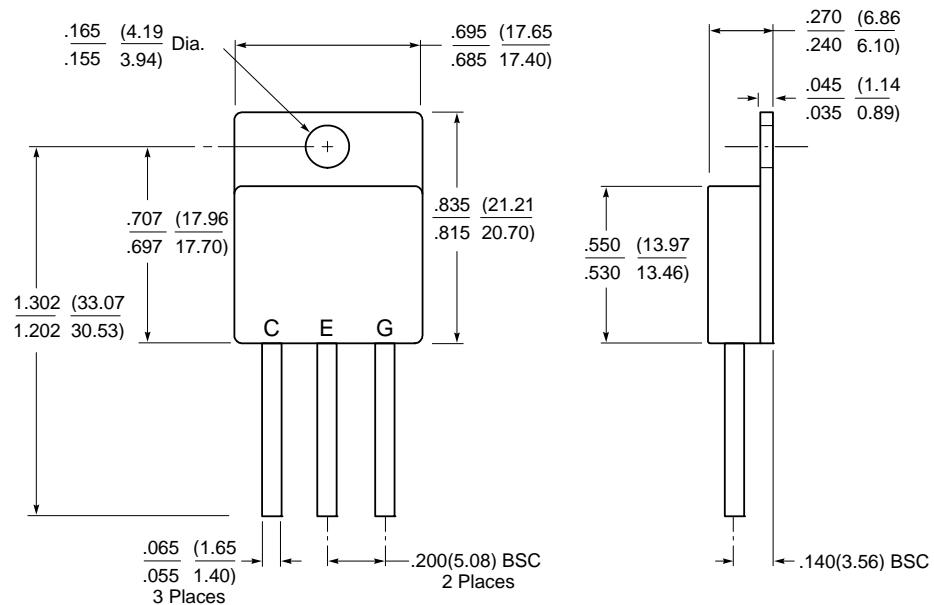
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Diode Peak Inverse Voltage	PIV	-	-	1200	V
Diode Forward Voltage $I_{EC} = 25A$	$V_{EC}$	-	1.9	2.4	V
Diode Reverse Recovery Time ( $I_F=20A, di/dt 200 A/\mu s$ )	$t_{rr}$	-	-	150	nsec
Maximum Thermal Resistance	$R_{\theta JC}$	-	-	1.0	$^{\circ}C/W$
Operating Junction Temperature	$T_{jmax}$	-55	-	150	$^{\circ}C/W$

(1) Current is limited by package leads. Die current rating is 70A.

**Schematic Diagram:**



**Package Drawing:  
(TO258)**



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