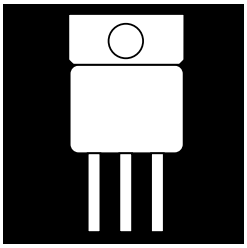
INSULATED GATE BIPOLAR TRANSISTOR (IGBT) IN A HERMETIC TO-258AA PACKAGE



**1000 Volt, 25 Amp, N-Channel IGBT
In A Hermetic Metal Package**

FEATURES

- Isolated IGBTs In A Hermetic Package
- High Input Impedance
- Low On-Voltage
- High Current Capability
- High Switching Speed
- Low Tail Current
- Available With Free Wheeling Diode
- Available Screened To MIL-S-19500, TX, TXV And S Levels

DESCRIPTION

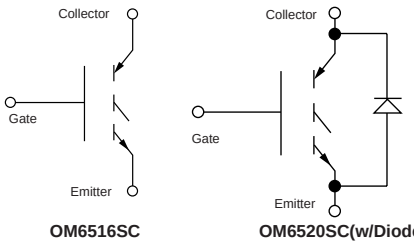
This IGBT power transistor features the high switching speeds of a power MOSFET and the low on-resistance of a bipolar transistor. It is ideally suited for high power switching applications such as frequency converters for 3Ø motors, UPS and high power SMPS.

MAXIMUM RATINGS @ 25°C Unless Specified Otherwise

PART NUMBER	I_C (Cont.) @ 90°C, A	$V_{(BR)CES}$ V	$V_{CE\ (sat)}$ (Typ.) V	T_f (Typ.) ns	q_{JC} °C/W	P_D W	T_J °C
OM6516SC	25	1000	4.0	300	1.0	125	150
OM6520SC	25	1000	4.0	300	1.0	125	150

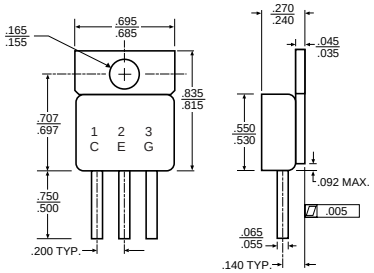
3.1

SCHEMATICS

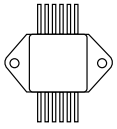


OM6516SC **OM6520SC(w/Diode)**

MECHANICAL OUTLINE

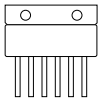


PACKAGE OPTIONS



MOD PAK

NOTE: IGBTs are also available in Z-Tab, dual and quad pak styles - Please call the factory for more information.



6 PIN SIP

Omnirel
205 Crawford Street, Leominster, MA 01453 USA (508) 534-5776 FAX (508) 537-4246

PRELIMINARY DATA: OM6516SC

IGBT CHARACTERISTICS

Parameter - OFF		Min.	Typ.	Max.	Units	Test Conditions
$V_{(BR)CES}$	Collector Emitter Breakdown Voltage	1000			V	V_{CE} = 0 I_C = 250 µA
I_{CES}	Zero Gate Voltage Drain Current			0.25	mA	V_{CE} = Max. Rat., V_{GE} = 0
				1.0	mA	V_{CE} = 0.8 Max. Rat., V_{GE} = 0 T_C = 125°C
I_{GES}	Gate Emitter Leakage Current			±100	nA	V_{GE} = ±20 V V_{CE} = 0 V
Parameter - ON						
$V_{GE(th)}$	Gate Threshold Voltage	4.5		6.5	V	V_{CE} = V_{GE}, I_C = 1 mA
$V_{CE(sat)}$	Collector Emitter Saturation Voltage		3.0		V	V_{GE} = 15 V, I_C = 15 A T_C = 25°C
$V_{CE(sat)}$	Collector Emitter Saturation Voltage		4.0	4.5	V	V_{GE} = 15 V, I_C = 15 A T_C = 125°C
Dynamic						
g_{fs}	Forward Transductance	5.5			S	V_{CE} = 20 V, I_C = 15 A
C_{ies}	Input Capacitance		2000		pF	V_{GE} = 0
C_{oes}	Output Capacitance		160		pF	V_{CE} = 25 V
C_{res}	Reverse Transfer Capacitance		65		pF	f = 1 mHz
Switching-Resistive Load						
$T_{d(on)}$	Turn-On Time		50		nS	V_{CC} = 600 V, I_C = 15 A
t_r	Rise Time		200		nS	V_{GE} = 15 V, R_g = 3.3 ,
$T_{d(off)}$	Turn-Off Delay Time		200		nS	T_j = 125°C
t_f	Fall Time		300		nS	
Switching-Inductive Load						
$T_{d(off)}$	Turn-Off Delay Time		200		nS	$V_{CEclamp}$ = 600 V, I_C = 15 A
t_f	Fall Time		200		nS	V_{GE} = 15 V, R_g = 3.3
E_{off}	Turn-Off Losses		1.5		mWs	L = 1 mH, T_j = 125°C

PRELIMINARY DATA: OM6520SC

IGBT CHARACTERISTICS

Parameter - OFF (see Note 1)		Min.	Typ.	Max.	Units	Test Conditions
$V_{(BR)CES}$	Collector Emitter Breakdown Voltage	1000			V	V_{CE} = 0 I_C = 250 µA
I_{CES}	Zero Gate Voltage Drain Current			0.25	mA	V_{CE} = Max. Rat., V_{GE} = 0
				1.0	mA	V_{CE} = 0.8 Max. Rat., V_{GE} = 0 T_C = 125°C
I_{GES}	Gate Emitter Leakage Current			±100	nA	V_{GE} = ±20 V V_{CE} = 0 V
Parameter - ON						
$V_{GE(th)}$	Gate Threshold Voltage	4.5		6.5	V	V_{CE} = V_{GE}, I_C = 1 mA
$V_{CE(sat)}$	Collector Emitter Saturation Voltage		3.0		V	V_{GE} = 15 V, I_C = 15 A T_C = 25°C
$V_{CE(sat)}$	Collector Emitter Saturation Voltage		4.0	4.5	V	V_{GE} = 15 V, I_C = 15 A T_C = 125°C
Dynamic						
g_{fs}	Forward Transductance	5.5			S	V_{CE} = 20 V, I_C = 15 A
C_{ies}	Input Capacitance		2000		pF	V_{GE} = 0
C_{oes}	Output Capacitance		160		pF	V_{CE} = 25 V
C_{res}	Reverse Transfer Capacitance		65		pF	f = 1 mHz
Switching-Resistive Load						
$T_{d(on)}$	Turn-On Time		50		nS	V_{CC} = 600 V, I_C = 15 A
t_r	Rise Time		200		nS	V_{GE} = 15 V, R_g = 3.3 ,
$T_{d(off)}$	Turn-Off Delay Time		200		nS	T_j = 125°C
t_f	Fall Time		300		nS	
Switching-Inductive Load						
$T_{d(off)}$	Turn-Off Delay Time		200		nS	$V_{CEclamp}$ = 600 V, I_C = 15 A
t_f	Fall Time		200		nS	V_{GE} = 15 V, R_g = 3.3
E_{off}	Turn-Off Losses		1.5		mWs	L = 1 mH, T_j = 125°C

DIODE CHARACTERISTICS

V_f	Maximum Forward Voltage			1.85	V	I_F = 30 A, T_C = 25°C
				1.70	V	I_F = 30 A, T_C = 150°C
I_r	Maximum Reverse Current			500	µA	V_R = 1000 V, T_C = 25°C
				7.0	mA	V_R = 800 V, T_C = 125°C
t_{rr}	Reverse Recovery Time			50	nS	I_F = 1 A, d_i / d_t = -15 A µ/S V_R = 30 V, T_j = 25°C

Note 1: Limited by diode I_r characteristic.