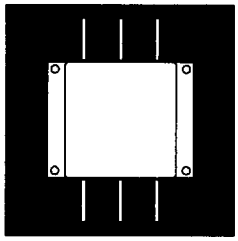
INSULATED GATE BIPOLAR TRANSISTOR (IGBT) IN A HERMETIC PACKAGE



1000 Volt, 50 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 Diodes
- Available Screened To MIL-S-19500, TX, TXV And S Levels

DESCRIPTION

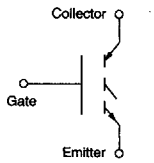
This IGBT power transistor features the high switching speeds of a power MOSFET and the low on-resistance of a bipolar transistor. It is ideally suited for high power switching applications such as frequency converters for 3Ø motors, UPS and high power SMPS.

MAXIMUM RATINGS @ 25°C Unless Specified Otherwise

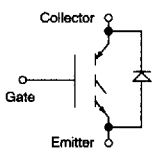
PART NUMBER	I_C (Cont.) @ 90°C, A	$V_{(BR)CES}$ V	$V_{CE\ (sat)}$ (Typ.) V	T_f (Typ.) ns	θ_{JC} °C/W	P_D W	T_J °C
OM6533SF	50	1000	4.0	300	.50	250	150
OM6534SF	50	1000	4.0	300	.50	250	150

2.1

SCHEMATICS

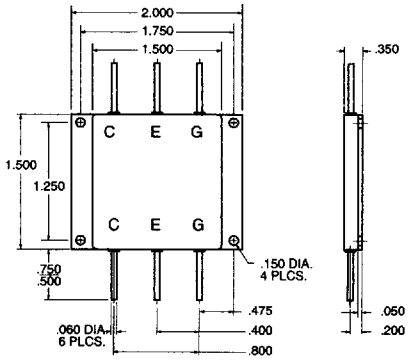


OM6533SF



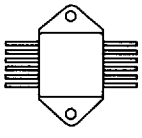
OM6534SF (with Diode)

MECHANICAL OUTLINE



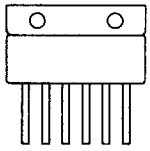
Contact factory for pinout confirmation.

PACKAGE OPTIONS



MOD PAK

NOTE: IGBTs are also available in Z-Tab, single 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

6789073 0001121 T9T

PRELIMINARY DATA: OM6533SF

IGBT CHARACTERISTICS

Parameter - OFF		Min.	Typ.	Max.	Units	Test Conditions
$V_{(BR)CES}$	Collector Emitter Breakdown Voltage	1000			V	V_{CE} = 0 I_C = 1 mA
I_{CES}	Zero Gate Voltage Drain Current			1.0	mA	V_{CE} = Max. Rat., V_{GE} = 0
				4.0	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 = 4 mA
$V_{CE(sat)}$	Collector Emitter Saturation Voltage		3.0		V	V_{GE} = 15 V, I_C = 50 A T_C = 25°C
$V_{CE(sat)}$	Collector Emitter Saturation Voltage		4.0	4.5	V	V_{GE} = 15 V, I_C = 50 A T_C = 150°C
Dynamic						
g_{fs}	Forward Transductance	22			S	V_{CE} = 20 V, I_C = 50 A
C_{ies}	Input Capacitance		8000		pF	V_{GE} = 0
C_{oes}	Output Capacitance		640		pF	V_{CE} = 25 V
C_{res}	Reverse Transfer Capacitance		250		pF	f = 1 mHz
Switching-Resistive Load						
$T_{d(on)}$	Turn-On Time		100		nS	V_{CC} = 600 V, I_C = 50 A
t_r	Rise Time		300		nS	V_{GE} = 15 V, R_g = 3.3 Ω,
$T_{d(off)}$	Turn-Off Delay Time		250		nS	T_j = 125°C
t_f	Fall Time		300		nS	
Switching-Inductive Load						
$T_{d(off)}$	Turn-Off Delay Time		250		nS	$V_{CEclamp}$ = 600 V, I_C = 50 A
t_f	Fall Time		200		nS	V_{GE} = 15 V, R_g = 3.3 Ω
E_{off}	Turn-Off Losses		4.0		mWs	L = 1 mH, T_j = 125°C

PRELIMINARY DATA: OM6534SF

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 = 1 mA
I_{CES}	Zero Gate Voltage Drain Current			1.0	mA	V_{CE} = Max. Rat., V_{GE} = 0
				4.0	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 = 4 mA
$V_{CE(sat)}$	Collector Emitter Saturation Voltage		3.0		V	V_{GE} = 15 V, I_C = 50 A T_C = 25°C
$V_{CE(sat)}$	Collector Emitter Saturation Voltage		4.0	4.5	V	V_{GE} = 15 V, I_C = 50 A T_C = 150°C
Dynamic						
g_{fs}	Forward Transductance	22			S	V_{CE} = 20 V, I_C = 50 A
C_{ies}	Input Capacitance		8000		pF	V_{GE} = 0
C_{oes}	Output Capacitance		640		pF	V_{CE} = 25 V
C_{res}	Reverse Transfer Capacitance		250		pF	f = 1 mHz
Switching-Resistive Load						
$T_{d(on)}$	Turn-On Time		100		nS	V_{CC} = 600 V, I_C = 50 A
t_r	Rise Time		300		nS	V_{GE} = 15 V, R_g = 3.3 Ω,
$T_{d(off)}$	Turn-Off Delay Time		250		nS	T_j = 125°C
t_f	Fall Time		300		nS	
Switching-Inductive Load						
$T_{d(off)}$	Turn-Off Delay Time		250		nS	$V_{CEclamp}$ = 600 V, I_C = 50 A
t_f	Fall Time		200		nS	V_{GE} = 15 V, R_g = 3.3 Ω
E_{off}	Turn-Off Losses		4.0		mWs	L = 1 mH, T_j = 125°C

DIODE CHARACTERISTICS

V_f	Maximum Forward Voltage			1.8	V	I_F = 50 A, T_C = 25°C
				1.6	V	I_F = 50 A, T_C = 125°C
I_r	Maximum Reverse Current			.5	mA	V_R = 1000 V, T_C = 25°C
				4.0	mA	V_R = 1000 V, T_C = 125°C
t_{rr}	Reverse Recovery Time			200	nS	I_F = 50 A, d_i/d_t = -800 A µ/S V_R = 600 V, T_j = 125°C, V_{GE} = 0

Note 1: Limited by diode I_r characteristic.