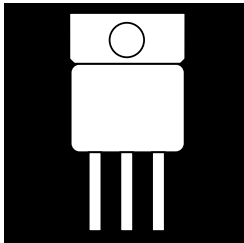


INSULATED GATE BIPOLAR TRANSISTOR (IGBT) IN A HERMETIC TO-258AA PACKAGE



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

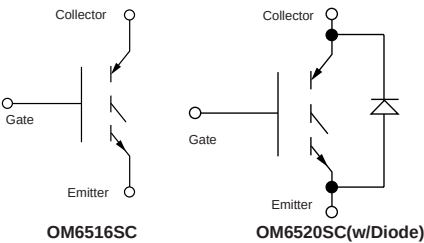
This IGBT power transistor features the high switching speeds of a power MOSFET and the low on-resistance of a bipolar transistor. It is ideally suited for high power switching applications such as frequency converters for 3Ø motors, UPS and high power SMPS.

MAXIMUM RATINGS @ 25°C Unless Specified Otherwise

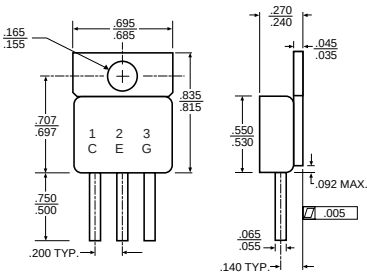
PART NUMBER	I _C (Cont.) @ 90°C, A	V _{(BR)CES} V	V _{CE (sat)} (Typ.) V	T _f (Typ.) ns	q _{JC} °C/W	P _D W	T _J °C
OM6516SC	25	1000	4.0	300	1.0	125	150
OM6520SC	25	1000	4.0	300	1.0	125	150

3.1

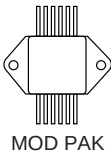
SCHEMATICS



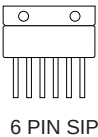
MECHANICAL OUTLINE



PACKAGE OPTIONS



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



PRELIMINARY DATA: OM6516SC

IGBT CHARACTERISTICS

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

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	$V_{CE} = 0$ $I_C = 250 \mu A$
I_{CES} Zero Gate Voltage Drain Current			0.25	mA	$V_{CE} = \text{Max. Rat.}, V_{GE} = 0$
			1.0	mA	$V_{CE} = 0.8 \text{ Max. Rat.}, V_{GE} = 0$ $T_C = 125^\circ C$
I_{GES} Gate Emitter Leakage Current			± 100	nA	$V_{GE} = \pm 20 \text{ V}$ $V_{CE} = 0 \text{ V}$
Parameter - ON					
$V_{GE(th)}$ Gate Threshold Voltage	4.5		6.5	V	$V_{CE} = V_{GE}, I_C = 1 \text{ mA}$
$V_{CE(sat)}$ Collector Emitter Saturation Voltage		3.0		V	$V_{GE} = 15 \text{ V}, I_C = 15 \text{ A}$ $T_C = 25^\circ C$
$V_{CE(sat)}$ Collector Emitter Saturation Voltage		4.0	4.5	V	$V_{GE} = 15 \text{ V}, I_C = 15 \text{ A}$ $T_C = 125^\circ C$
Dynamic					
g_{fs} Forward Transductance	5.5			S	$V_{CE} = 20 \text{ V}, I_C = 15 \text{ A}$
C_{ies} Input Capacitance		2000		pF	$V_{GE} = 0$
C_{oes} Output Capacitance		160		pF	$V_{CE} = 25 \text{ V}$
C_{res} Reverse Transfer Capacitance		65		pF	$f = 1 \text{ MHz}$
Switching-Resistive Load					
$T_{d(on)}$ Turn-On Time		50		nS	$V_{CC} = 600 \text{ V}, I_C = 15 \text{ A}$
t_r Rise Time		200		nS	$V_{GE} = 15 \text{ V}, R_g = 3.3 \text{ } ,$
$T_{d(off)}$ Turn-Off Delay Time		200		nS	$T_J = 125^\circ C$
t_f Fall Time		300		nS	
Switching-Inductive Load					
$T_{d(off)}$ Turn-Off Delay Time		200		nS	$V_{CEclamp} = 600 \text{ V}, I_C = 15 \text{ A}$
t_f Fall Time		200		nS	$V_{GE} = 15 \text{ V}, R_g = 3.3$
E_{off} Turn-Off Losses		1.5		mWs	$L = 1 \text{ mH}, T_J = 125^\circ C$
DIODE CHARACTERISTICS					
V_f Maximum Forward Voltage			1.85	V	$I_F = 30 \text{ A}, T_C = 25^\circ C$
			1.70	V	$I_F = 30 \text{ A}, T_C = 150^\circ C$
I_r Maximum Reverse Current			500	μA	$V_R = 1000 \text{ V}, T_C = 25^\circ C$
			7.0	mA	$V_R = 800 \text{ V}, T_C = 125^\circ C$
t_{rr} Reverse Recovery Time			50	nS	$I_F = 1 \text{ A}, dI/dt = -15 \text{ A } \mu S$ $V_R = 30 \text{ V}, T_J = 25^\circ C$

Note 1: Limited by diode I_r characteristic.