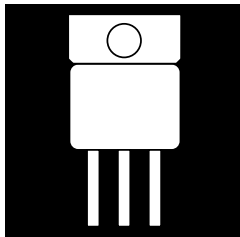


INSULATED GATE BIPOLAR TRANSISTOR (IGBT) IN A HERMETIC TO-258AA PACKAGE



**500 Volt, 20 And 30 Amp, N-Channel IGBT
In A Hermetic Metal Package**

FEATURES

- Isolated Hermetic Metal Package
- High Input Impedance
- Low On-Voltage
- High Current Capability
- Fast Turn-Off
- Low Conductive Losses
- Available Screened to MIL-S-19500, TX, TXV And S Levels

DESCRIPTION

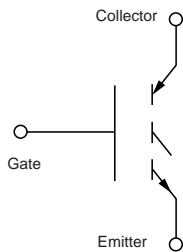
The IGBT power transistor features a high impedance insulated gate and a low on-resistance characteristic of bipolar transistors. These devices are ideally suited for motor drives, UPS converters, power supplies and resonant power converters.

MAXIMUM RATINGS @ 25°C Unless Specified Otherwise

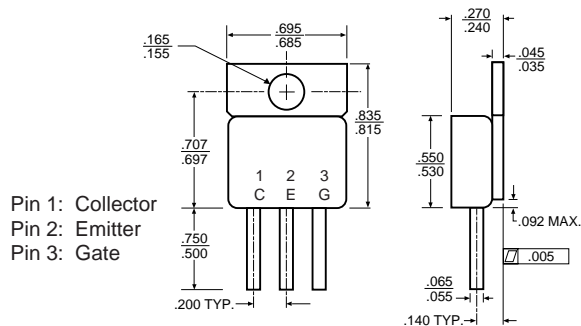
PART NUMBER	I _c (Cont.) @ 90°C, A	V _{(BR)CES} V	V _{CE(sat)} (Typ.) V	T _f (Typ.) ns	θ _{JC} °C/W	P _D W	T _J °C
OM6503SC	20	500	2.8	400	1.75	72	150
OM6504SC	30	500	2.8	400	1.00	125	150

3.1

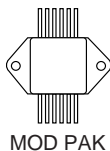
SCHEMATIC



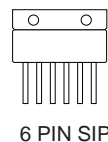
MECHANICAL OUTLINE



PACKAGE OPTIONS



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



PRELIMINARY DATA: OM6503SC

IGBT CHARACTERISTICS

Parameter - OFF	Min.	Typ.	Max.	Units	Test Conditions
$V_{(BR)CES}$ Collector Emitter Breakdown Voltage	500			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	$V_{GE} = \pm 20 V$ $V_{CE} = 0 V$
Parameter - ON					
$V_{GE(th)}$ Gate Threshold Voltage	2.0		4.0	V	$V_{CE} = V_{GE}, I_C = 250 \mu A$
$V_{CE(sat)}$ Collector Emitter Saturation Voltage		3.0		V	$V_{GE} = 15 V, I_C = 20 A$ $T_C = 25^\circ C$
$V_{CE(sat)}$ Collector Emitter Saturation Voltage		2.8	3.0	V	$V_{GE} = 15 V, I_C = 20 A$ $T_C = 100^\circ C$
Dynamic					
g_{fs} Forward Transductance	5.0			S	$V_{CE} = 20 V, I_C = 20 A$
C_{ies} Input Capacitance		1700		pF	$V_{CE} = 0$
C_{oer} Output Capacitance		215		pF	$V_{CE} = 25 V$
C_{res} Reverse Transfer Capacitance		115		pF	$f = 1 \text{ MHz}$
Switching-Resistive Load					
$T_{d(on)}$ Turn-On Time		60		nS	$V_{CC} = 400 V, I_C = 20 A$
t_r Rise Time		240		nS	$V_{GE} = 15 V, R_\theta = 47$
Switching-Inductive Load					
$t_{r(Volt)}$ Off Voltage Rise Time		.55		μS	$V_{CE(damp)} = 400 V, I_C = 20 A$
t_f Fall Time		.60		μS	$V_{GE} = 15 V, R_\theta = 100$
t_{cross} Cross-Over Time		1.2		μS	$L = 0.1 \text{ mH}, T_J = 100^\circ C$
E_{off} Turn-Off Losses		3.0		mJ	

PRELIMINARY DATA: OM6504SC

IGBT CHARACTERISTICS

Parameter - OFF	Min.	Typ.	Max.	Units	Test Conditions
$V_{(BR)CES}$ Collector Emitter Breakdown Voltage	500			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	$V_{GE} = \pm 20 V$ $V_{CE} = 0 V$
Parameter - ON					
$V_{GE(th)}$ Gate Threshold Voltage	2.0		4.0	V	$V_{CE} = V_{GE}, I_C = 250 \mu A$
$V_{CE(sat)}$ Collector Emitter Saturation Voltage		3.0		V	$V_{GE} = 15 V, I_C = 30 A$ $T_C = 25^\circ C$
$V_{CE(sat)}$ Collector Emitter Saturation Voltage		2.8	3.0	V	$V_{GE} = 15 V, I_C = 30 A$ $T_C = 125^\circ C$
Dynamic					
g_{fs} Forward Transductance	8.0			S	$V_{CE} = 15 V, I_C = 30 A$
C_{ies} Input Capacitance			3500	pF	$V_{CE} = 0$
C_{oer} Output Capacitance			250	pF	$V_{CE} = 25 V$
C_{res} Reverse Transfer Capacitance			50	pF	$f = 1 \text{ MHz}$
Switching-Resistive Load					
$T_{d(on)}$ Turn-On Time			100	nS	$V_{CC} = 400 V, I_C = 30 A$
t_r Rise Time			200	nS	$V_{GE} = 15 V, R_\theta = 100$
$T_{d(off)}$ Turn-Off Delay Time			1.0	μS	$T_J = 125^\circ C$
t_f Fall Time			2.0	μS	
Switching-Inductive Load					
$T_{d(off)}$ Turn-Off Delay Time			1.0	nS	$V_{CE(damp)} = 400 V, I_C = 30 A$
t_f Current Fall Time			3.0	μS	$V_{GE} = 15 V, R_\theta = 100$ $L = 0.1 \text{ mH}, T_J = 125^\circ C$