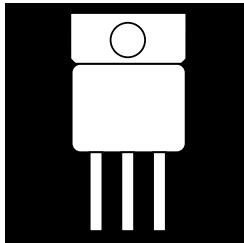


INSULATED GATE BIPOLAR TRANSISTOR (IGBT) IN A HERMETIC TO-258AA PACKAGE



**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

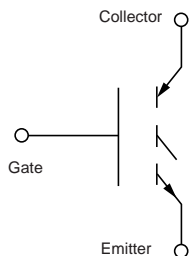
DESCRIPTION

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.

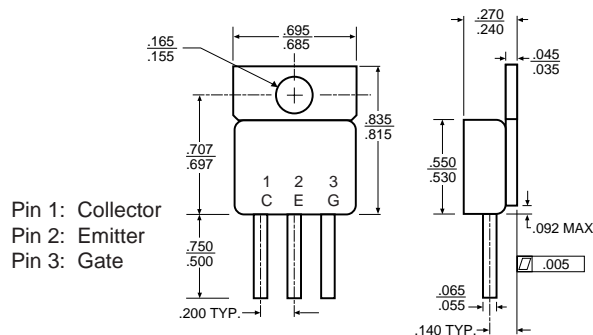
MAXIMUM RATINGS @ 25°C Unless Specified Otherwise

PART NUMBER	I _c (Cont.) @ 90°C, A	V _{(BR)CES} V	V _{CE(sat)} (Typ.) V	T _f (Typ.) ns	α _{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

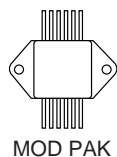
SCHEMATIC



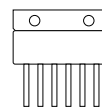
MECHANICAL OUTLINE



PACKAGE OPTIONS



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



3.1

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 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	2.0		4.0	V	V _{CE} = V _{GE} , I _C = 250 μA
V _{CE(sat)} Collector Emitter Saturation Voltage		3.0		V	V _{GE} = 15 V, I _C = 20 A T _C = 25°C
V _{CE(sat)} Collector Emitter Saturation Voltage		2.8	3.0	V	V _{GE} = 15 V, I _C = 20 A T _C = 100°C
Dynamic					
g _{fs} Forward Transductance	5.0			S	V _{CE} = 20 V, I _C = 20 A
C _{res} Input Capacitance		1700		pF	V _{GE} = 0
C _{oes} Output Capacitance		215		pF	V _{CE} = 25 V
C _{res} Reverse Transfer Capacitance		115		pF	f = 1 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 _g = 47
Switching-Inductive Load					
t _{r(Volt)} Off Voltage Rise Time		.55		μS	V _{CEclamp} = 400 V, I _C = 20 A
t _f Fall Time		.60		μS	V _{GE} = 15 V, R _g = 100
t _{cross} Cross-Over Time		1.2		μS	L = 0.1 mH, T _J = 100°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 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	2.0		4.0	V	V _{CE} = V _{GE} , I _C = 250 μA
V _{CE(sat)} Collector Emitter Saturation Voltage		3.0		V	V _{GE} = 15 V, I _C = 30 A T _C = 25°C
V _{CE(sat)} Collector Emitter Saturation Voltage		2.8	3.0	V	V _{GE} = 15 V, I _C = 30 A T _C = 125°C
Dynamic					
g _{fs} Forward Transductance	8.0			S	V _{CE} = 15 V, I _C = 30 A
C _{res} Input Capacitance			3500	pF	V _{GE} = 0
C _{oes} Output Capacitance			250	pF	V _{CE} = 25 V
C _{res} Reverse Transfer Capacitance			50	pF	f = 1 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 _g = 100
T _{d(off)} Turn-Off Delay Time			1.0	μS	T _J = 125°C
t _f Fall Time			2.0	μS	
Switching-Inductive Load					
T _{d(off)} Turn-Off Delay Time			1.0	nS	V _{CEclamp} = 400 V, I _C = 30 A
t _f Current Fall Time			3.0	μS	V _{GE} = 15 V, R _g = 100 L = 0.1 mH, T _J = 125°C