



# **Table 1. THERMAL RESISTANCE RATINGS**

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-to-Case, for IGBT	$R_{\theta JC}$	0.68	°C/W
Thermal Resistance Junction-to-Case, for Diode	$R_{\theta JC}$	1.55	
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	40	

# Table 2. ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise stated)

Parameter	Symbol	Test Condition	Min	Тур	Max	Unit
OFF CHARACTERISTICS						
Collector-to-Emitter Breakdown Voltage	BV <sub>CES</sub>	$V_{GE} = 0 \text{ V}, I_{C} = 1 \text{ mA}$	650	-	-	V
Temperature Coefficient of Breakdown Voltage	$\Delta V_{CES} / \Delta T_{J}$	$V_{GE} = 0 \text{ V, } I_{C} = 1 \text{ mA}$	-	0.6	-	V/°C
Collector Cut-Off Current	I <sub>CES</sub>	$V_{CE} = V_{CES}$ , $V_{GE} = 0$ V	-	_	250	μΑ
G-E Leakage Current	I <sub>GES</sub>	$V_{GE} = V_{GES}, V_{CE} = 0 V$	-	-	±400	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$ , $I_C = 30 \text{ mA}$	3.0	4.5	6.0	V
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	$I_C = 30 \text{ A}, V_{GE} = 15 \text{ V}, T_C = 25^{\circ} \text{C}$	•	•	•	•

Table 2. ELECTRICAL CHARACTERISTICS ( $T_C = 25^{\circ}C$  unless otherwise stated)

Parameter	Symbol	Test Condition	Min	Тур	Max	Unit
DIODE CHARACTERISTICS	-					
Diode Forward Voltage	$V_{FM}$	I <sub>F</sub> = 20 A	_	1.5	2.1	V
Reverse Recovery Energy	E <sub>rec</sub>	I <sub>F</sub> = 20 A dI <sub>F</sub> /dt = 200 A/μs, T <sub>C</sub> = 25°C	-	22	-	μJ
Diode Reverse Recovery Time	t <sub>rr</sub>		-	131	-	ns
Diode Reverse Recovery Charge	Q <sub>rr</sub>		-	348	-	nC
Reverse Recovery Energy	E <sub>rec</sub>	$I_F = 20 \text{ A}$ $dI_F/dt = 200 \text{ A/}\mu\text{s}, T_C = 175^{\circ}\text{C}$	-	100	-	μJ
Diode Reverse Recovery Time	t <sub>rr</sub>		-	245	-	ns
Diode Reverse Recovery Charge	Q <sub>rr</sub>		_	961	-	nC

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

### **TYPICAL CHARACTERISTICS**

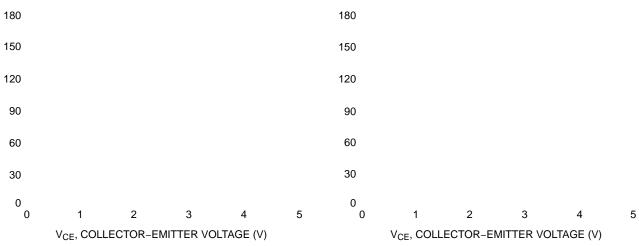


Figure 1. Typical Output Characteristics (25°C)

Figure 2. Typical Output Characteristics (175°C)



Figure 3. Typical Saturation Voltage Characteristics

 $T_C$ , COLLECT-EMITTER CASE TEMPERATURE (°C)

Figure 4. Saturation Voltage vs. Case Temperature at Variant Current Level

### **TYPICAL CHARACTERISTICS**

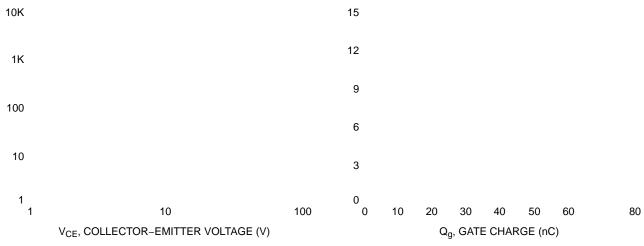


Figure 7. Capacitance Characteristics

Figure 8. Gate Charge Characteristics

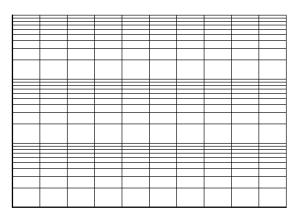
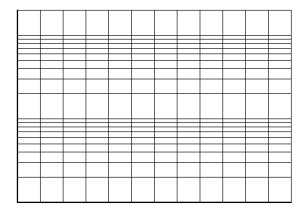


Figure 10. 106m i off Charact961 0 T76230eResistance9201 1 9575945 9 -48DI6.1544 Tm (R)Tj 637.31 0 115.2Tj .49

RGÎWHÎPZÎPÊ4baTCedYÑTnt+A∰DeHg2BtÙmb@6wEYşÑ4RRQI®QP2t 1QY01∓a€EY†j®sÑE(E#YE6Ñ#Mb∰0 Charact961 0 T760 0eRes2.954-.

Figure 9. Turn-on Characteristics vs. Gate Resistance

Figure 10. Turn-off Characteristics vs. Gate Resistance



### **TYPICAL CHARACTERISTICS**

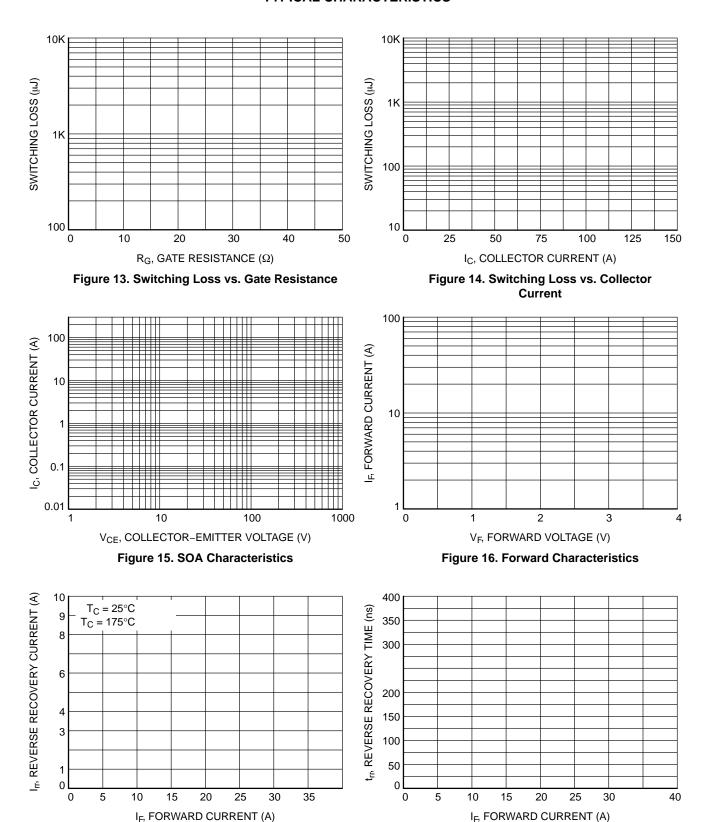


Figure 18. Reverse Recovery Time

Figure 17. Reverse Recovery Current



# D<sup>2</sup>PAK-3 (TO-263, 3-LEAD) CASE 418AJ ISSUE F

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