ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Value	Unit
IGBT (T11, T12, T13, T14, T21, T22)			
Collector−emitter voltage	V_{CES}	650	V
Collector current @ T_h = 80°C (per IGBT)	I_C	59	A
Pulsed collector current, T_{pulse} limited by T_{jmax}	I_{CM}	176	A
Power Dissipation Per IGBT $T_j = T_{jmax}$, T_h = 80°C	P_{tot}	83	W
Gate−emitter voltage	V_{GE}	±20	V
Maximum Junction Temperature	T_J	175	°C
DIODE (D12, D14, D20, D21, D22)			
Peak Repetitive Reverse Voltage	V_{RRM}	650	V
Forward Current, DC @ T_h = 80°C (per Diode)	I_F	50	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	225	A
Power Dissipation Per Diode $T_j = T_{jmax}$, T_h = 80°C	P_{tot}	86	W
Maximum Junction Temperature	T_J	175	°C
THERMAL PROPERTIES			
Operating Temperature under switching condition	$T_{VJ\ OP}$	−40 to (T_{jmax} − 25)	°C
Storage Temperature range	T_{stg}	−40 to 125	°C

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ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise specified) (continued)

Parameter	Test Condition	Symbol	Min	Typ	Max	Unit
IGBT (T11, T12, T13, T14, T21, T22)						
Input capacitance	V_{CE} = 30 V, V_{GE} = 0 V, f = 1 MHz	C_{ies}	–	5665	–	pF
Output capacitance		C_{oes}	–	205	–	
Reverse transfer capacitance		C_{res}	–	100	–	
Gate charge total	V_{CE} = 480 V, I_C = 50 A, V_{GE} = ±15 V	Q_g	–	550	–	nC
Thermal Resistance – chip–to–heatsink	Thermal grease, Thickness = 2.1 Mil ±2% λ = 2.9 W/mK	R_{thJH}	–	1.15	–	°C/W
Thermal Resistance – chip–to–case		R_{thJC}	–	0.75	–	°C/W
IGBT INVERSE DIODE (D12, D14, D21, D22)						

TYPICAL CHARACTERISTICS (T11, T12, T13, T14) IGBT COMMUTATES D21, D22 DIODE

TYPICAL CHARACTERISTICS (T21, T22) IGBT COMMUTATES D20 DIODE

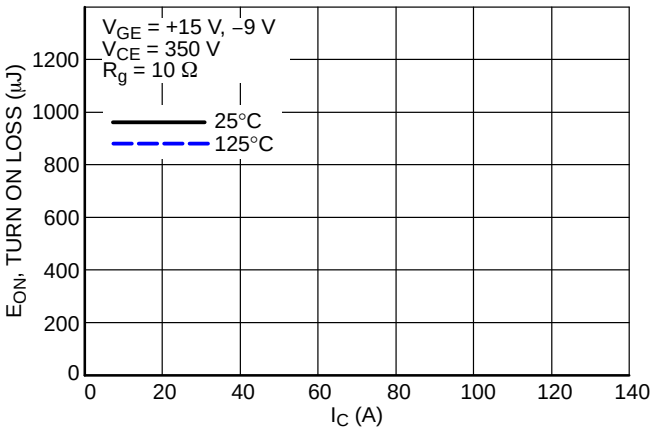


Figure 15. Typical Turn ON Loss vs. IC

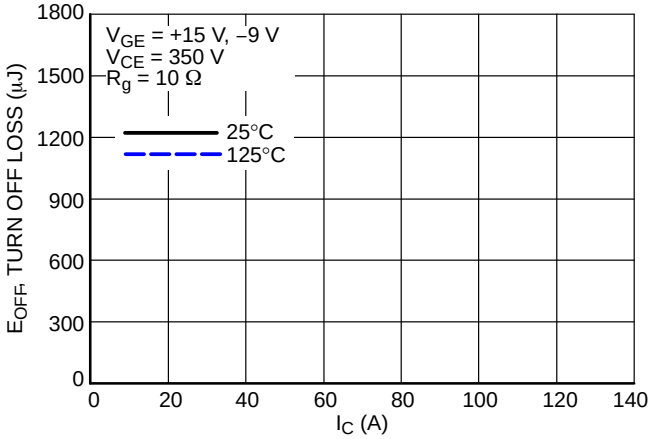


Figure 16. Typical Turn OFF Loss vs. IC

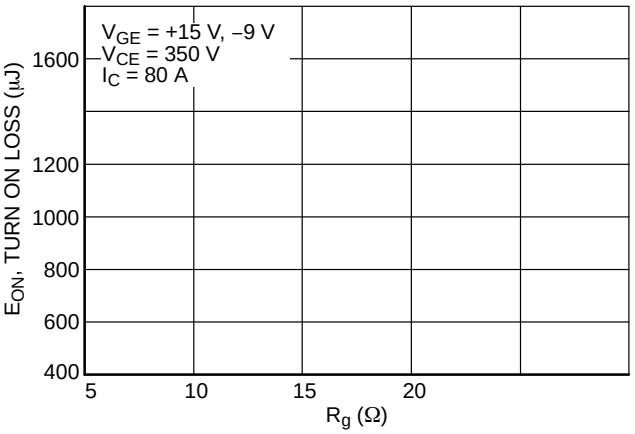


Figure 17. Typical Turn ON Loss vs. RG

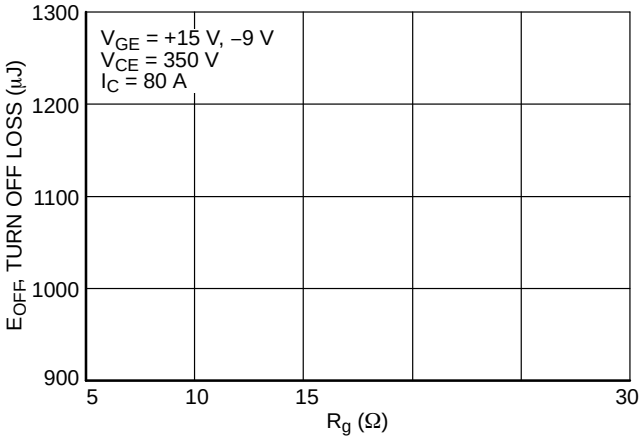


Figure 18. Typical Turn OFF Loss vs. RG

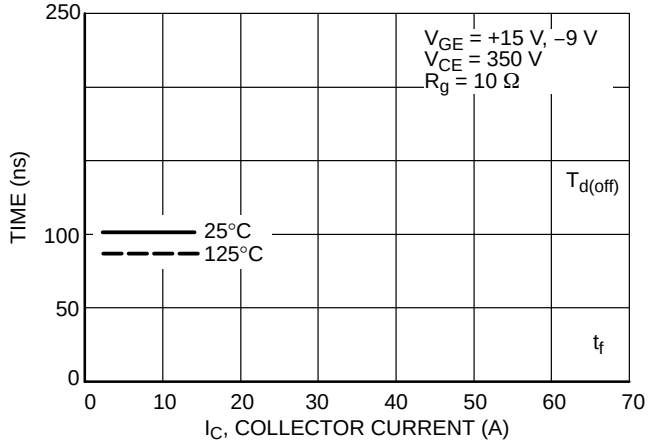


Figure 19. Typical Turn Off Switching Time vs. IC

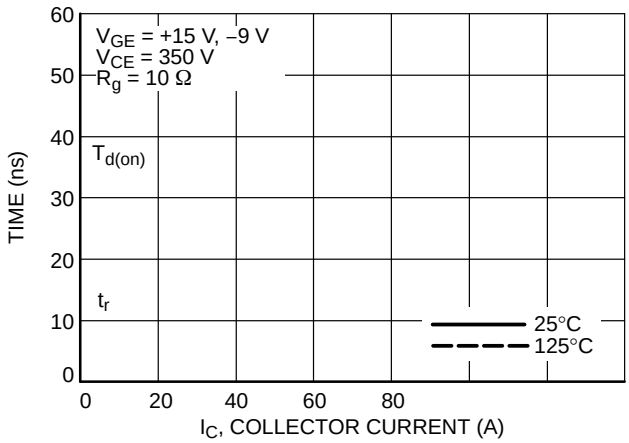


Figure 20. Typical Turn On Switching Time vs. IC

TYPICAL CHARACTERISTICS (T21, T22) IGBT COMMUTATES D20 DIODE (CONTINUED)

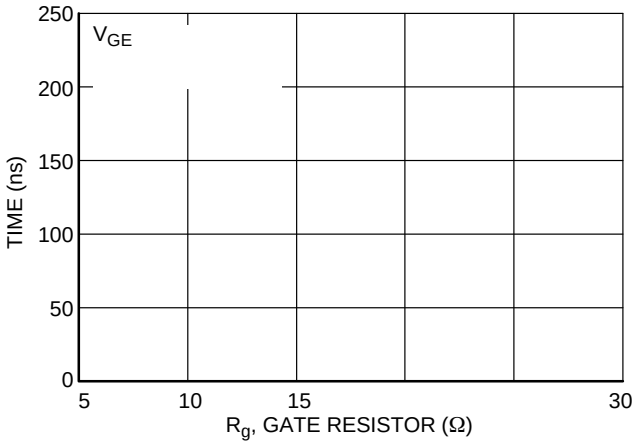


Figure 21. Typical Turn Off Switching Time vs. Rg

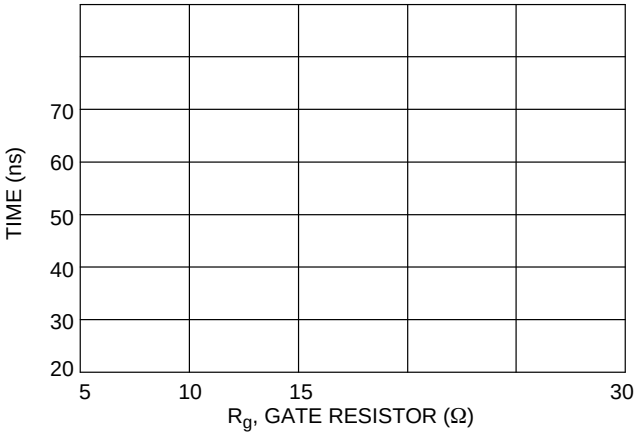


Figure 22. Typical Turn On Switching Time vs. Rg

TYPICAL CHARACTERISTICS DIODE (CONTINUED)

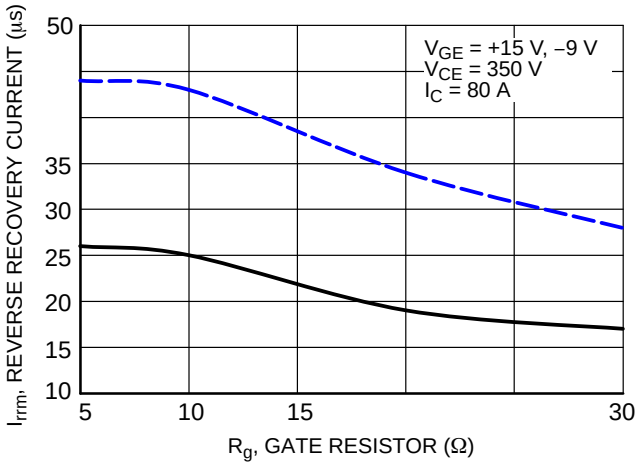


Figure 27. Typical Reverse Recovery Peak Current vs. Rg

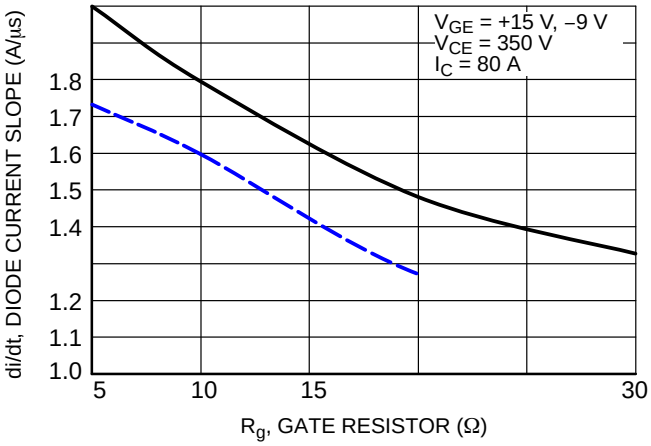
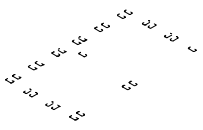


Figure 28. Typical di/dt vs. Rg

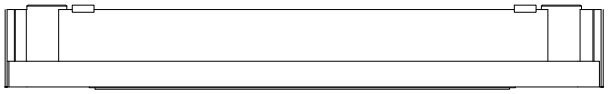
PIM27, 71x37.4 (SOLDER PIN)
CASE 180CA
ISSUE B

DATE 14 DEC 2022

PIM27, 71x37.4 (PRESSFIT PIN)



GENERIC
MARKING DIAGRAM*



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