

AFGB40T65RQDN

MAXIMUM RATINGS (T_C = 25°C unless otherwise stated)

Parameter	Symbol	Value	Unit
Collector to Emitter Voltage	V _{CES}	650	V
Gate to Emitter Voltage Transient Gate to Emitter Voltage T _{pulse} = 5 μs, D < 0.10	V _{GES}	±20 ±30	V
Collector Current (Note 1) @T _C = 25°C @T _C = 100°C	I _C	68 40	A
Pulsed Collector Current (Note 2)	I _{LM}	160	A
Pulsed Collector Current (Note 3)	I _{CM}	160	A
Diode Forward Current (Note 1) @T _C = 25°C @T _C = 100°C	I _F		

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ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector-to-Emitter Breakdown Voltage, Gate-Emitter Short-Circuited	BV_{CES}	$V_{GE} = 0\text{ V}, I_C = 1\text{ mA}$	650	-	-	V
Temperature Coefficient of Breakdown Voltage	$\Delta BV_{CES} / \Delta T_J$	$V_{GE} = 0\text{ V}, I_C = 1\text{ mA}$	-	0.62	-	V/ $^\circ\text{C}$
Collector-Emitter Cut-Off Current, Gate-Emitter Short-Circuited	I_{CES}	$V_{CE} = V_{CES}, V_{GE} = 0\text{ V}$	-	-	30	μA
Gate Leakage Current, Collector-Emitter Short-Circuited	I_{GES}	$V_{GE} = V_{GES}, V_{CE}$				

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ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise stated) (continued)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
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SWITCHING CHARACTERISTICS, INDUCTIVE LOAD

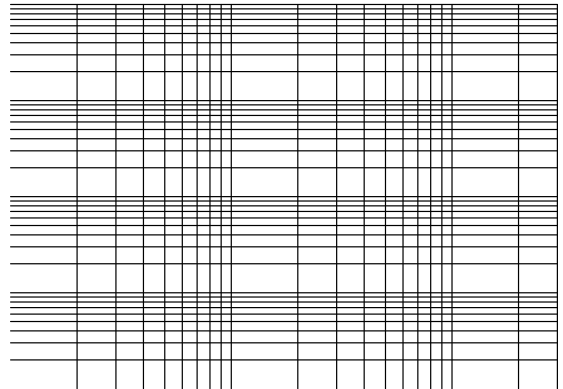
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$T_J = 175^\circ\text{C}$, $V_{CC} = 400\text{ V}$, $I_C = 40\text{ A}$, $R_g = 3\ \Omega$, $V_{GE} = 15\text{ V}$, Inductive Load	–	24	–	ns
Rise Time	t_r		–	51	–	
Turn-Off Delay Time	$t_{d(off)}$		–	80	–	
Fall Time	t_f		–	152	–	
Turn-On Switching Loss	E_{on}		–	1.71	–	mJ
Turn-Off Switching Loss	E_{off}		–	1.37	–	
Total Switching Loss	E_{ts}		–	3.08	–	

DIODE CHARACTERISTICS

Parameter	Symbol
Diode Forward Voltage	V_F

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TYPICAL CHARACTERISTICS



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TYPICAL CHARACTERISTICS (Continued)

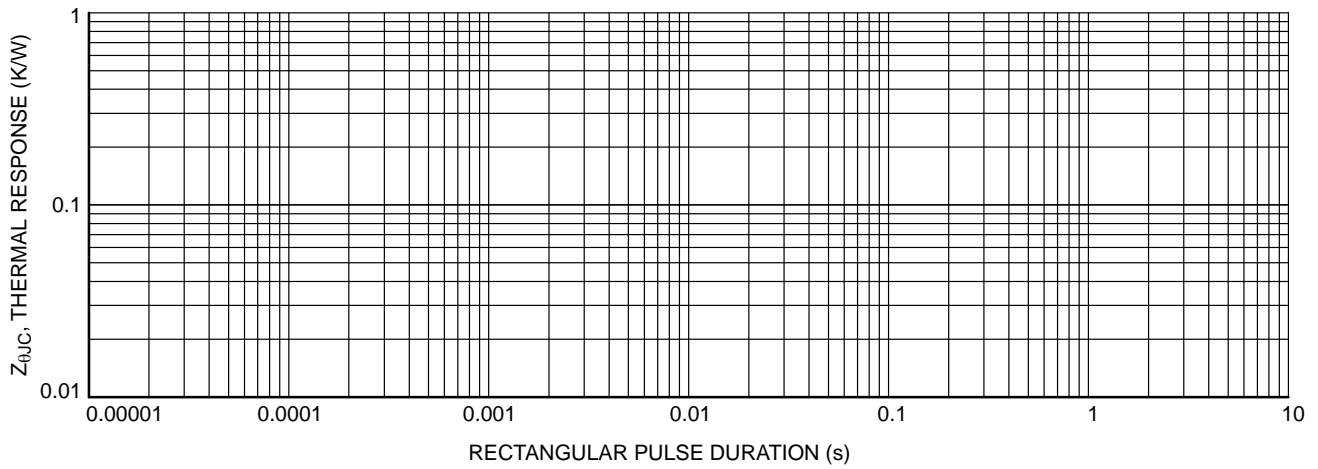


Figure 19. Transient Thermal Impedance of IGBT

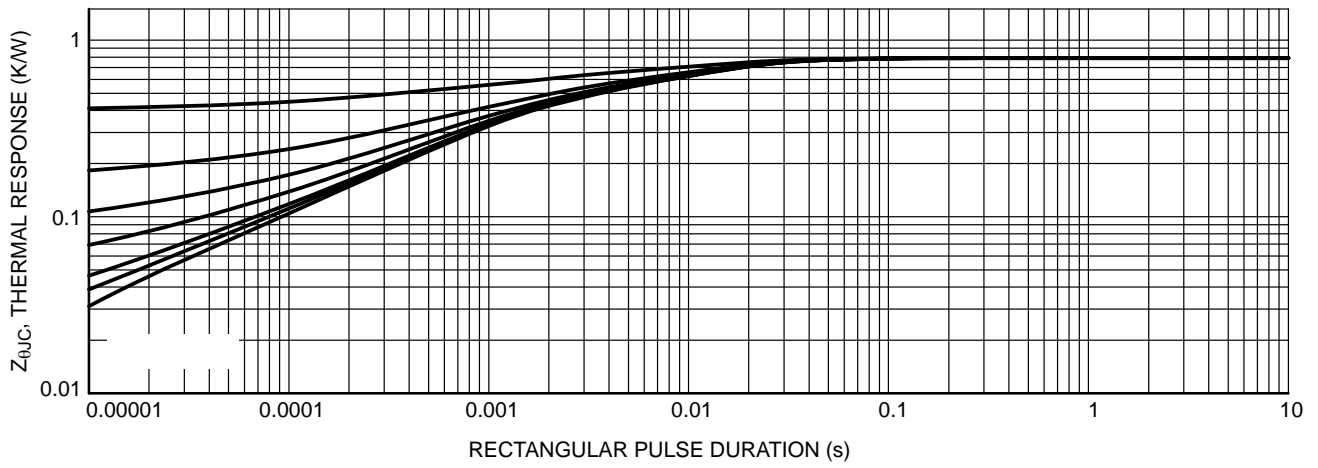


Figure 20. Transient Thermal Impedance of Diode



SCALE 1:1

D²PAK-3 (TO-263, 3-LEAD)
CASE 418AJ
ISSUE F

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