

DYNAMIC CHARACTERISTICS

APT106N60B2_LC6

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 25V f = 1 MHz		8390		pF
C _{oss}	Output Capacitance			7115		
C _{rss}	Reverse Transfer Capacitance			229		
Q _g	Total Gate Charge ^⑤	V _{GS} = 10V V _{DD} = 300V I _D = 106A @ 25°C		308		nC
Q _{gs}	Gate-Source Charge			50		
Q _{gd}	Gate-Drain ("Miller") Charge			160		
t _{d(on)}	Turn-on Delay Time	INDUCTIVE SWITCHING V _{GS} = 15V V _{DD} = 400V I _D = 106A @ 25°C R _G = 4.3Ω		25		ns
t _r	Rise Time			79		
t _{d(off)}	Turn-off Delay Time			277		
t _f	Fall Time			164		
E _{on}	Turn-on Switching Energy ^⑥	INDUCTIVE SWITCHING @ 25°C V _{DD} = 400V, V _{GS} = 15V I _D = 106A, R _G = 4.3Ω		2995		μJ
E _{off}	Turn-off Switching Energy			3775		
E _{on}	Turn-on Switching Energy ^⑥	INDUCTIVE SWITCHING @ 125°C V _{DD} = 400V, V _{GS} = 15V I _D = 106A, R _G = 4.3Ω		4055		
E _{off}	Turn-off Switching Energy			4200		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
I _S	Continuous Source Current (Body Diode)			92	Amps
I _{SM}	Pulsed Source Current ^② (Body Diode)			318	
V _{SD}	Diode Forward Voltage ^④ (V _{GS} = 0V, I _S = -106A)		0.9	1.2	Volts
dv/dt	Peak Diode Recovery ^⑦ dv/dt			15	V/ns
t _{rr}	Reverse Recovery Time (I _S = -106A, di/dt = 100A/μs) T _J = 25°C		1400		ns
Q _{rr}	Reverse Recovery Charge (I _S = -106A, di/dt = 100A/μs) T _J = 25°C		45		μC
I _{RRM}	Peak Recovery Current (I _S = -106A, di/dt = 100A/μs) T _J = 25°C		47		Amps

THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
R _{θJC}	Junction to Case			0.15	°C/W
R _{θJA}	Junction to Ambient			40	
W _T	Package Weight		0.22		oz
			6.2		g
Torque	Mounting Torque (TO-264 Package), 4-40 or M3 screw			10	in·lbf
				1.1	N·m

- 1 Continuous current limited by package lead temperature.
- 2 Repetitive Rating: Pulse width limited by maximum junction temperature
- 3 Repetitive avalanche causes additional power losses that can be calculated as P_{AV} = E_{AR}*f. Pulse width tp limited by T_J max.
- 4 Pulse Test: P
- 5 See MIL-STD-750 Method 3471
- 6 E_{on} includes diode reverse recovery.
- 7 Maximum 125°C diode commutation speed = di/dt 600A/μs

Microsemi reserves the right to change, without notice, the specifications and information contained herein.

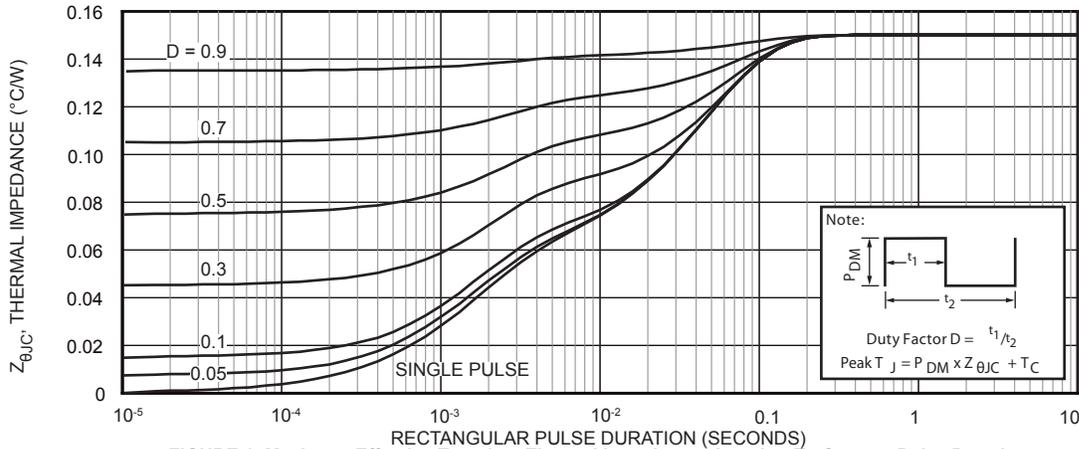


FIGURE 1, Maximum Effective Transient Thermal Impedance, Junction-To-Case vs Pulse Duration

TYPICAL PERFORMANCE CURVES

APT106N60B2_LC6

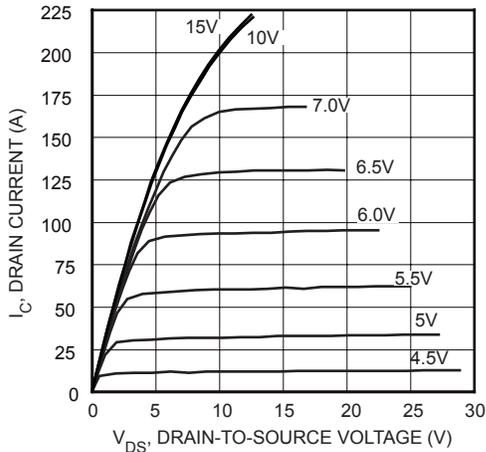


FIGURE 2, Low Voltage Output Characteristics

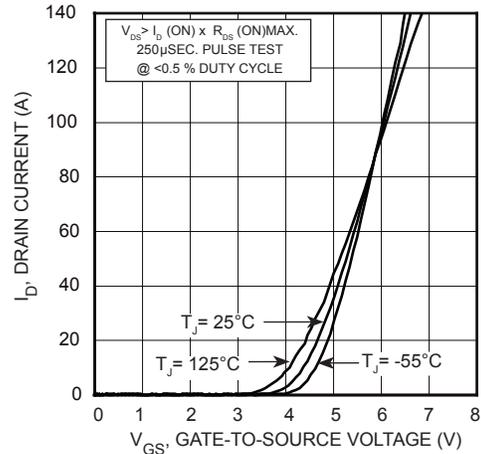


FIGURE 3, Transfer Characteristics

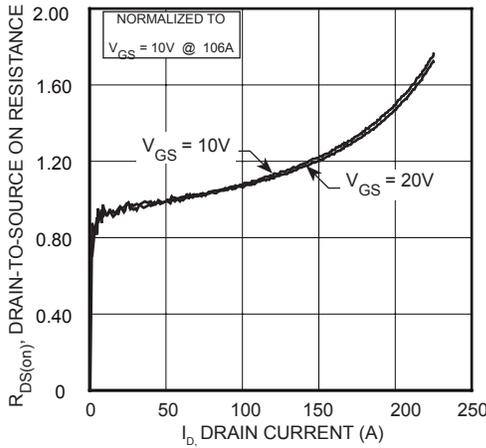


FIGURE 4, $R_{DS(ON)}$ vs Drain Current

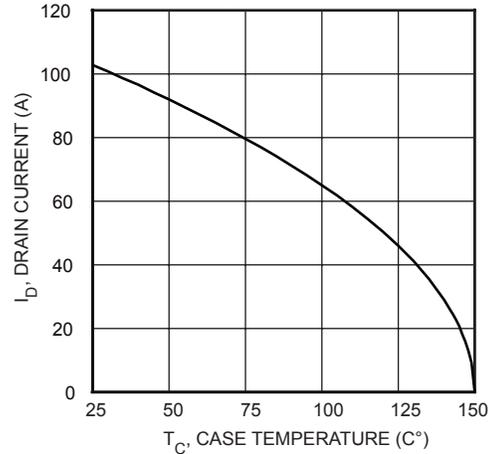


FIGURE 5, Maximum Drain Current vs Case Temperature

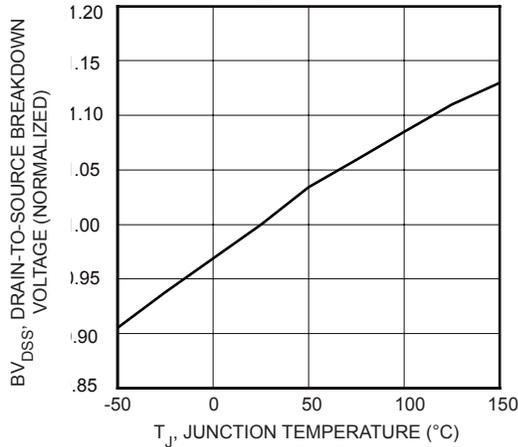


FIGURE 6, Breakdown Voltage vs Temperature

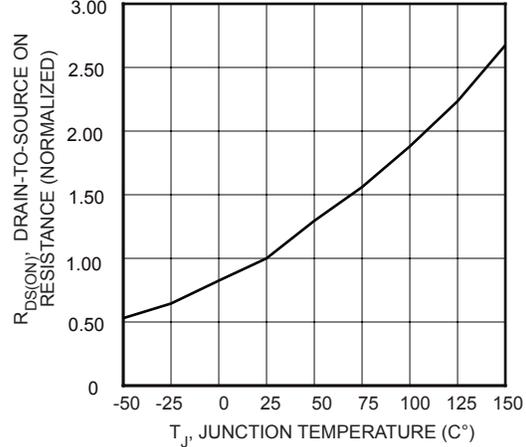


FIGURE 7, On-Resistance vs Temperature

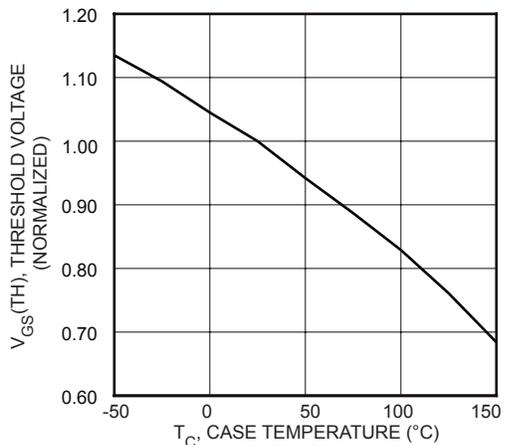


FIGURE 8, Threshold Voltage vs Temperature

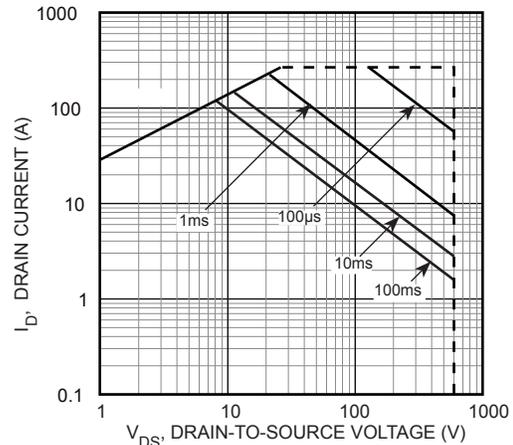


FIGURE 9, Maximum Safe Operating Area

TYPICAL PERFORMANCE CURVES

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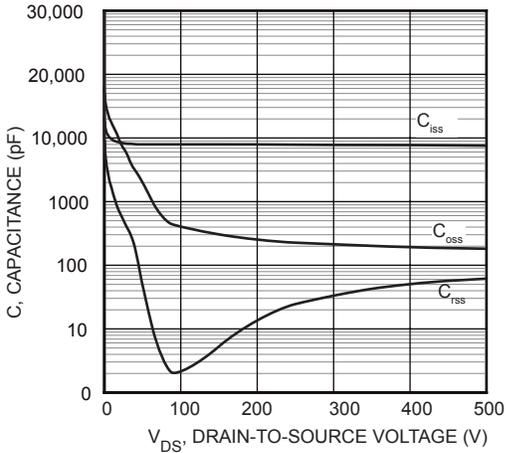


FIGURE 10, Capacitance vs Drain-To-Source Voltage

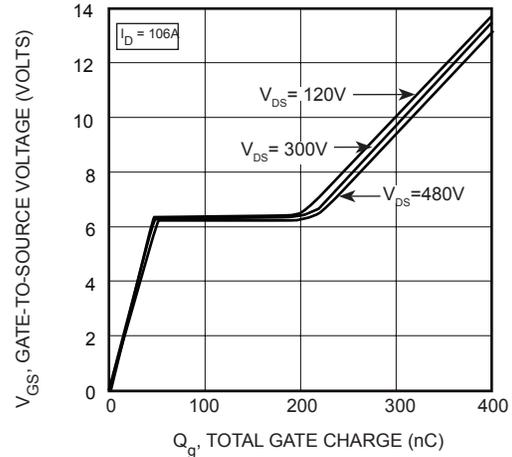


FIGURE 11, Gate Charges vs Gate-To-Source Voltage

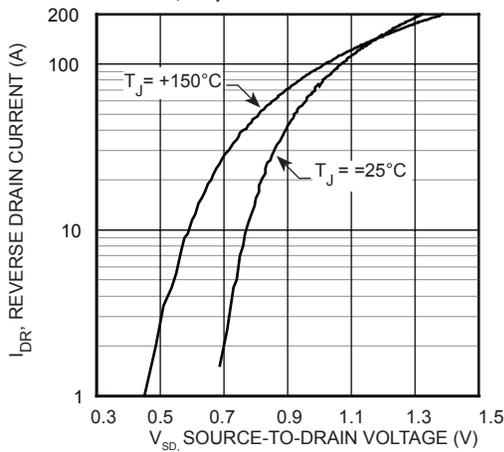


FIGURE 12, Source-Drain Diode Forward Voltage

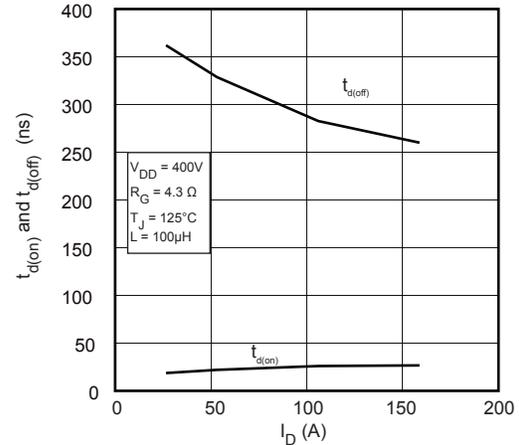


FIGURE 13, Delay Times vs Current

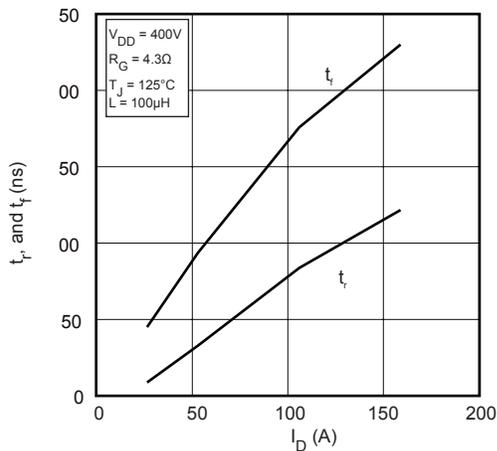


FIGURE 14, Rise and Fall Times vs Current

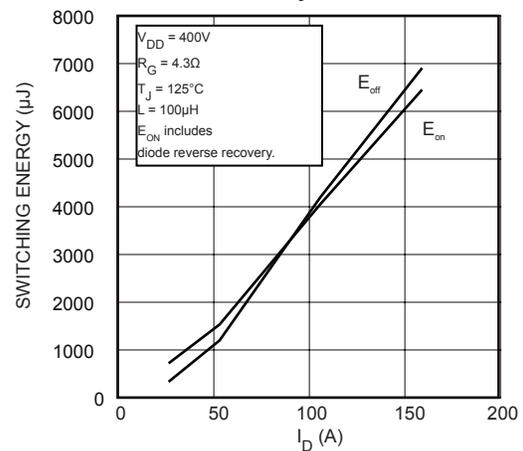


FIGURE 15, Switching Energy vs Current

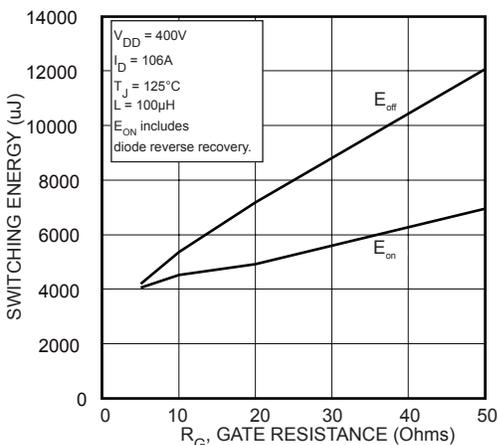


FIGURE 16, Switching Energy vs Gate Resistance

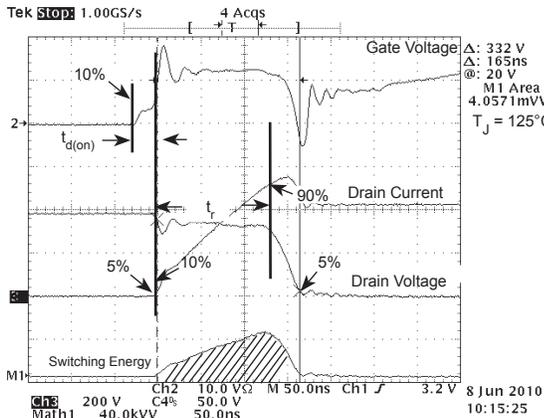


FIGURE 17, Turn-on Switching Waveforms and Definitions

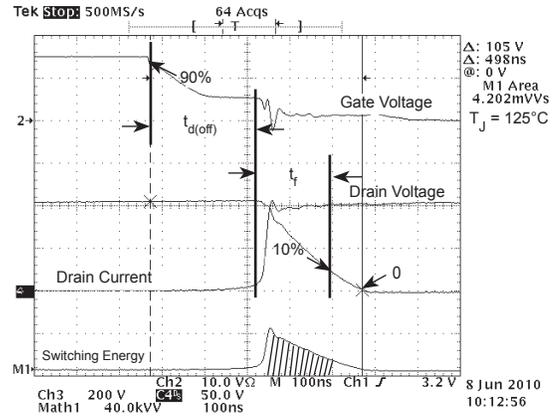


FIGURE 18, Turn-off Switching Waveforms and Definitions

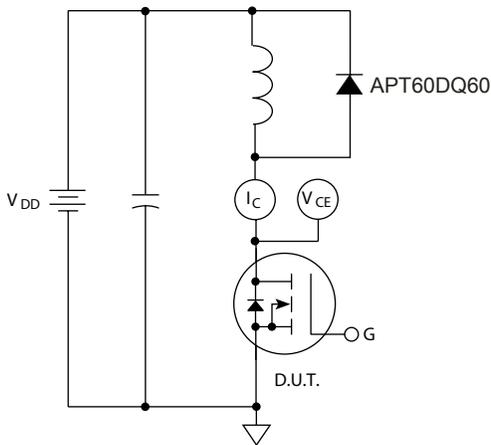
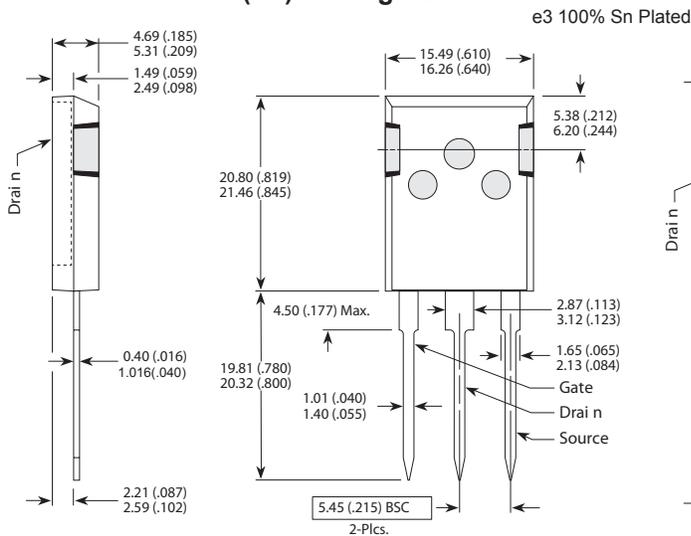


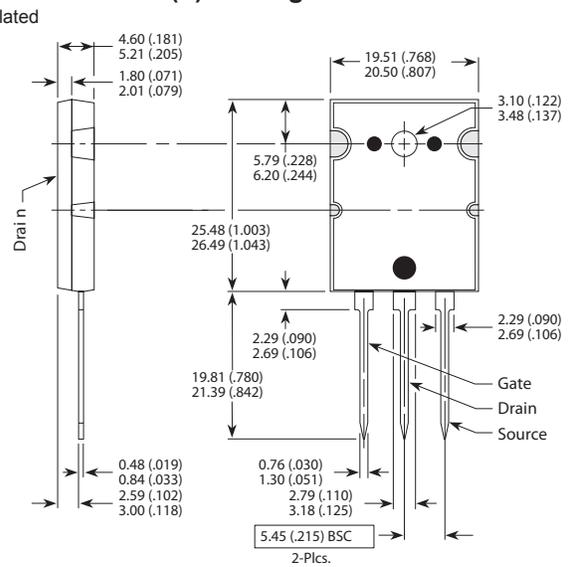
FIGURE 19, Inductive Switching Test Circuit

T-MAX® (B2) Package Outline



These dimensions are equal to the TO-247 without the mounting hole.
Dimensions in Millimeters and (Inches)

TO-264 (L) Package Outline



Dimensions in Millimeters and (Inches)

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