

Static Characteristics
T_J = 25°C unless otherwise specified
APT18F60B_S

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V _{BR(DSS)}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	600			V
ΔV _{BR(DSS)} /ΔT _J	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D = 250μA		0.57		V/°C
R _{DS(on)}	Drain-Source On Resistance ^③	V _{GS} = 10V, I _D = 9A		.31	0.37	Ω
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} = V _{DS} , I _D = 1mA	2.5	4	5	V
ΔV _{GS(th)} /ΔT _J	Threshold Voltage Temperature Coefficient			-10		mV/°C
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 600V V _{GS} = 0V			250 1000	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V			±100	nA

Dynamic Characteristics
T_J = 25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
g _{fs}	Forward Transconductance	V _{DS} = 50V, I _D = 9A		17		S
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 25V f = 1MHz		3550		pF
C _{rss}	Reverse Transfer Capacitance			36		
C _{oss}	Output Capacitance			325		
C _{o(cr)} ^④	Effective Output Capacitance, Charge Related	V _{GS} = 0V, V _{DS} = 0V to 400V		175		
C _{o(er)} ^⑤	Effective Output Capacitance, Energy Related			90		
Q _g	Total Gate Charge	V _{GS} = 0 to 10V, I _D = 9A, V _{DS} = 300V		90		nC
Q _{gs}	Gate-Source Charge			19		
Q _{gd}	Gate-Drain Charge			37		
t _{d(on)}	Turn-On Delay Time	Resistive Switching V _{DD} = 400V, I _D = 9A R _G = 4.7Ω ^⑥ , V _{GG} = 15V		20		ns
t _r	Current Rise Time			23		
t _{d(off)}	Turn-Off Delay Time			60		
t _f	Current Fall Time			18		

Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I _S	Continuous Source Current (Body Diode)	MOSFET symbol showing the integral reverse p-n junction diode (body diode)			19	A
I _{SM}	Pulsed Source Current (Body Diode) ^①				65	
V _{SD}	Diode Forward Voltage	I _{SD} = 9A, T _J = 25°C, V _{GS} = 0V			1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} = 9A ^③ di _{SD} /dt = 100A/μs V _{DD} = 100V	T _J = 25°C	175	200	ns
			T _J = 125°C	315	380	
Q _{rr}	Reverse Recovery Charge		T _J = 25°C	0.65		μC
			T _J = 125°C	1.56		
I _{rrm}	Reverse Recovery Current		T _J = 25°C	6.7		A
			T _J = 125°C	9.2		
dv/dt	Peak Recovery dv/dt	I _{SD} ≤ 9A, di/dt ≤ 1000A/μs, V _{DD} = 400V, T _J = 125°C			20	V/ns

① Repetitive Rating: Pulse width and case temperature limited by maximum junction temperature.

② Starting at T_J = 25°C, L = 12.2mH, R_G = 25Ω, I_{AS} = 9A.

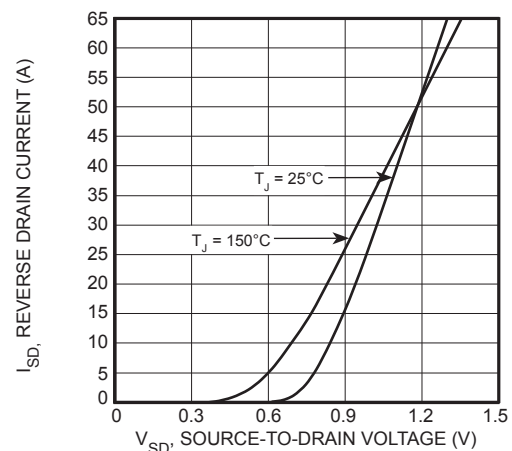
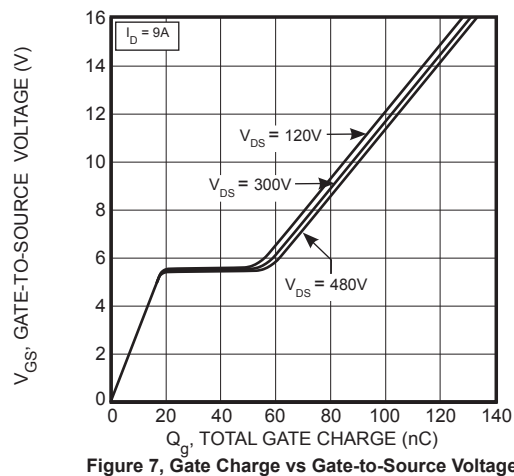
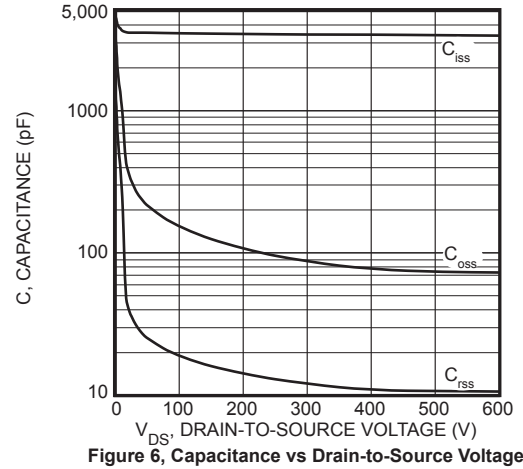
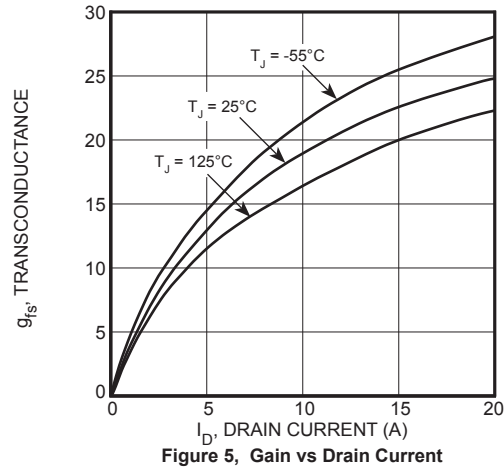
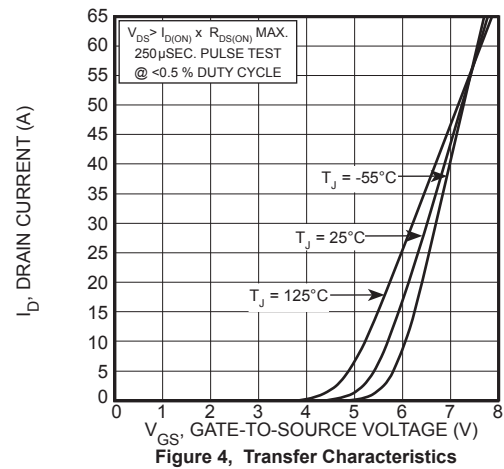
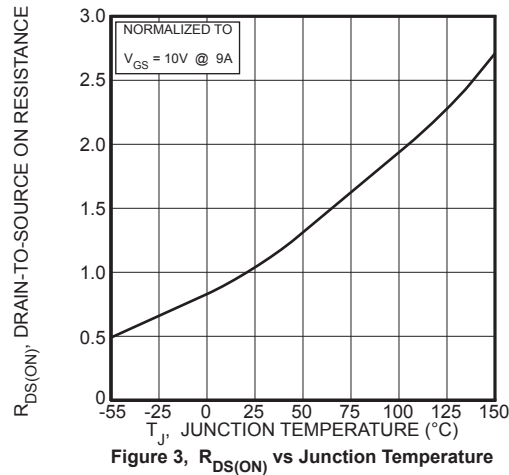
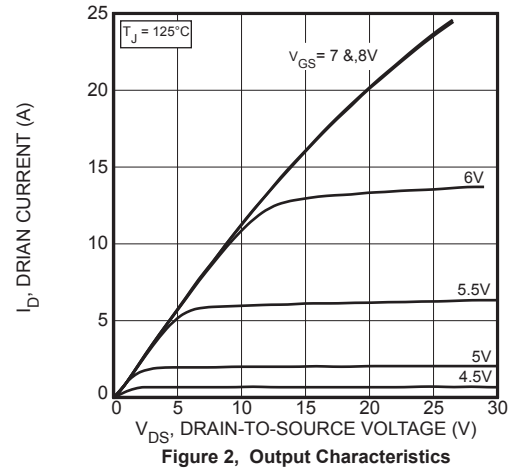
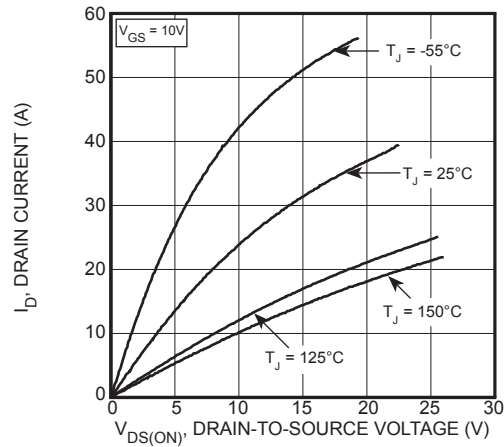
③ Pulse test: Pulse Width < 380μs, duty cycle < 2%.

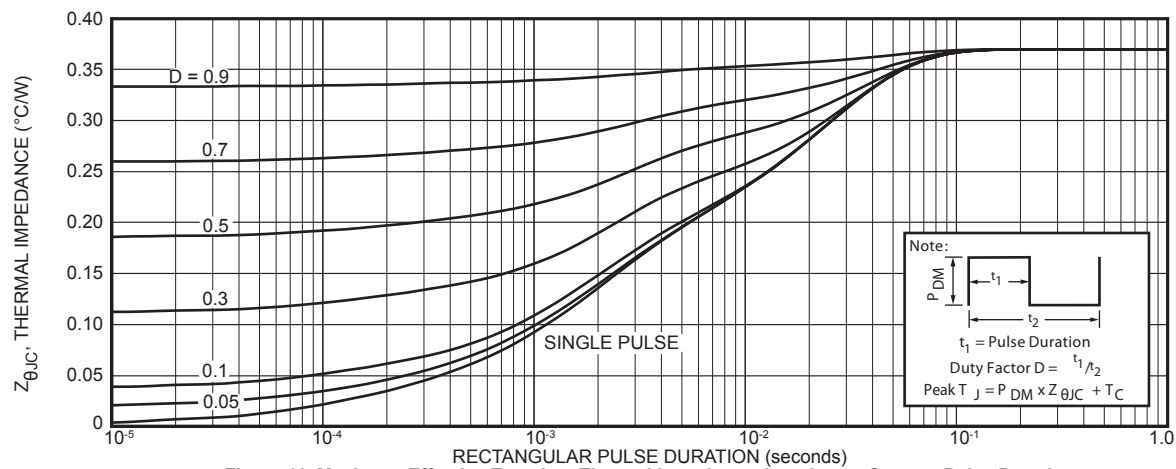
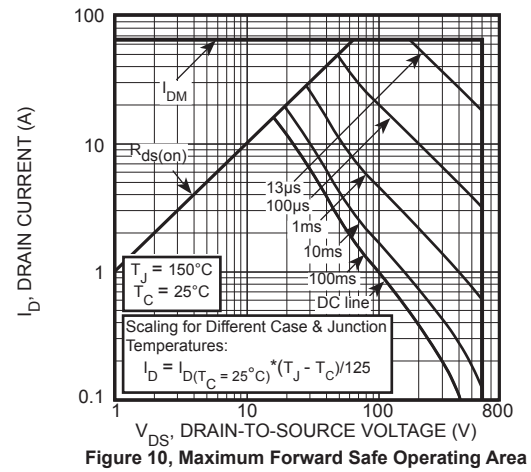
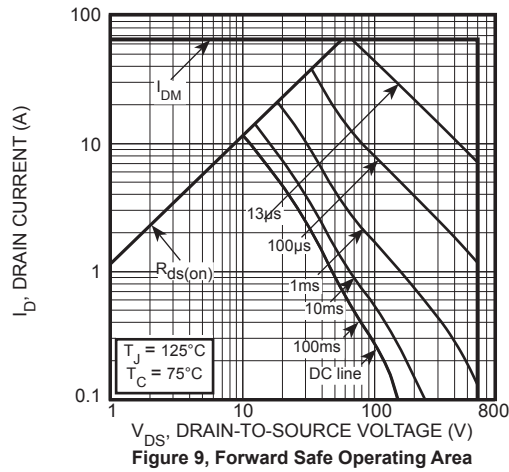
④ C_{o(cr)} is defined as a fixed capacitance with the same stored charge as C_{OSS} with V_{DS} = 67% of V_{(BR)DSS}.

⑤ C_{o(er)} is defined as a fixed capacitance with the same stored energy as C_{OSS} with V_{DS} = 67% of V_{(BR)DSS}. To calculate C_{o(er)} for any value of V_{DS} less than V_{(BR)DSS}, use this equation: C_{o(er)} = -3.43E-8/V_{DS}² + 1.44E-8/V_{DS} + 5.38E-11.

⑥ R_G is external gate resistance, not including internal gate resistance or gate driver impedance. (MIC4452)

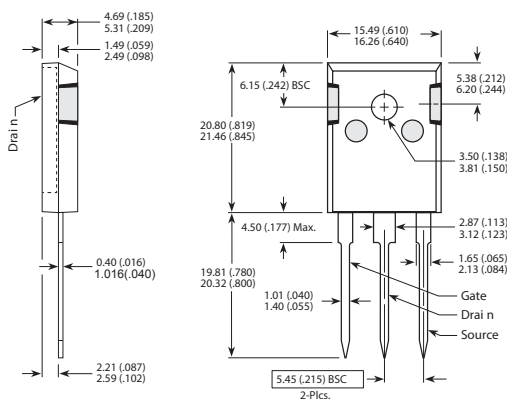
Microsemi reserves the right to change, without notice, the specifications and information contained herein.





TO-247 (B) Package Outline

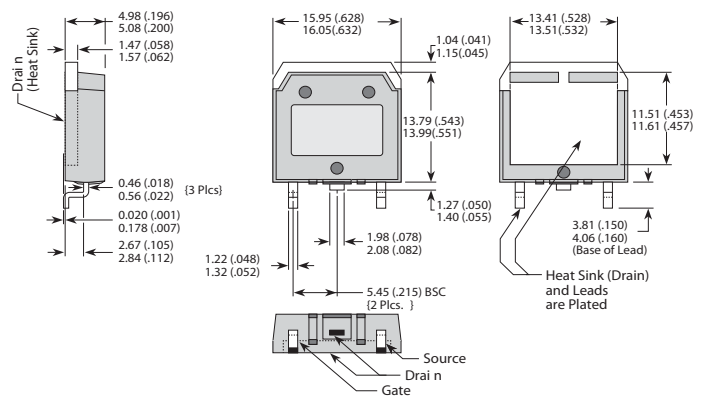
② SAC: Tin, Silver, Copper



Dimensions in Millimeters (Inches)

D³PAK Package Outline

③ 100% Sn Plated



Dimensions in Millimeters (Inches)