

Static Characteristics
T_J = 25°C unless otherwise specified
APT17F100B_S

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V _{BR(DSS)}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	1000			V
ΔV _{BR(DSS)} /ΔT _J	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D = 250μA		1.15		V/°C
R _{DS(on)}	Drain-Source On Resistance ^③	V _{GS} = 10V, I _D = 9A		0.67	0.78	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} = 1000V 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		19		S
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 25V f = 1MHz		4845		pF
C _{rss}	Reverse Transfer Capacitance			65		
C _{oss}	Output Capacitance			405		
C _{o(cr)} ^④	Effective Output Capacitance, Charge Related	V _{GS} = 0V, V _{DS} = 0V to 667V		165		
C _{o(er)} ^⑤	Effective Output Capacitance, Energy Related			85		
Q _g	Total Gate Charge	V _{GS} = 0 to 10V, I _D = 9A, V _{DS} = 500V		150		nC
Q _{gs}	Gate-Source Charge			26		
Q _{gd}	Gate-Drain Charge			70		
t _{d(on)}	Turn-On Delay Time	Resistive Switching V _{DD} = 667V, I _D = 9A R _G = 4.7Ω ^⑥ , V _{GG} = 15V		29		ns
t _r	Current Rise Time			31		
t _{d(off)}	Turn-Off Delay Time			105		
t _f	Current Fall Time			28		

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)			17	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	215	245	ns
			T _J = 125°C	385	465	
Q _{rr}	Reverse Recovery Charge		T _J = 25°C	1.02		μC
			T _J = 125°C	2.57		
I _{rrm}	Reverse Recovery Current		T _J = 25°C	9.03		A
			T _J = 125°C	12.83		
dv/dt	Peak Recovery dv/dt	I _{SD} ≤ 9A, di/dt ≤ 1000A/μs, V _{DD} = 400V, T _J = 125°C			25	V/ns

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

② Starting at T_J = 25°C, L = 26.42mH, R_G = 25Ω, I_{AS} = 9A.

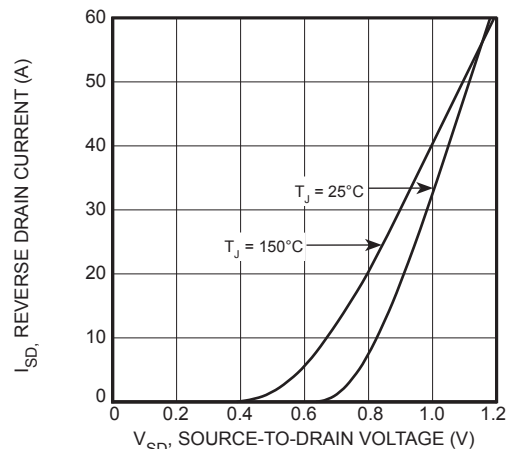
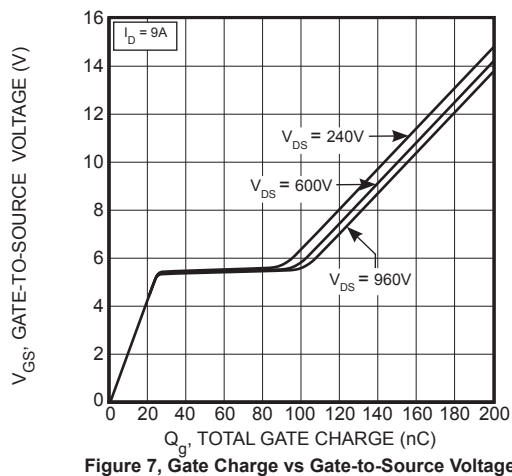
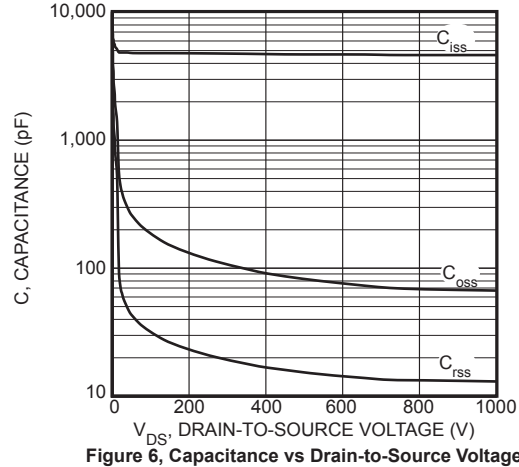
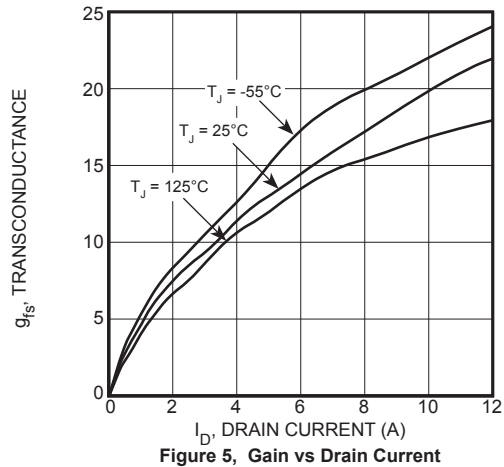
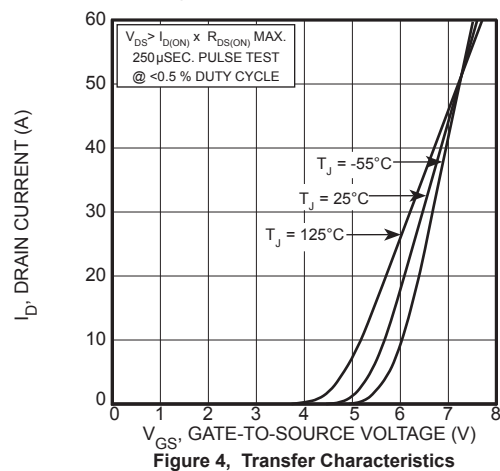
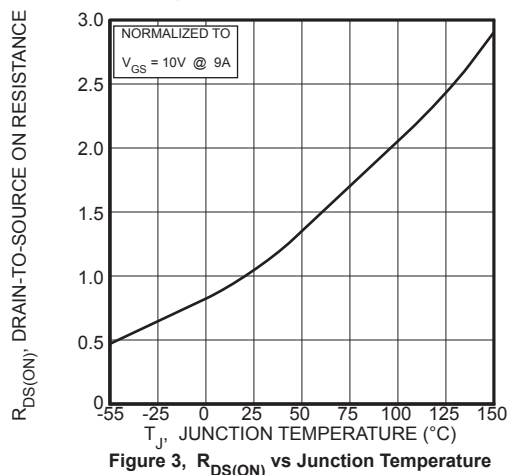
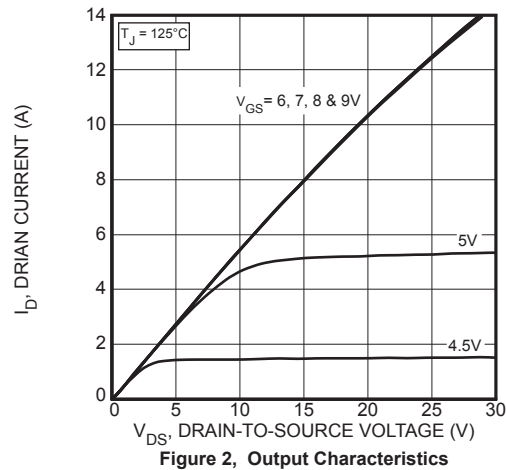
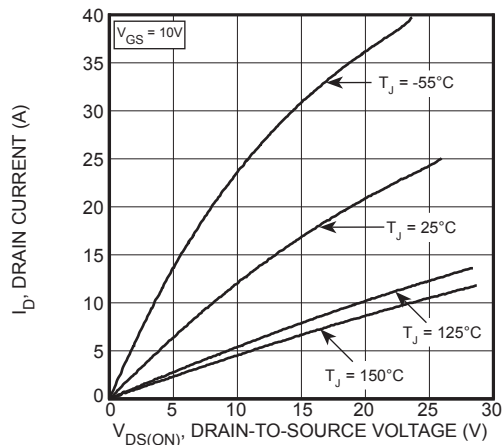
③ Pulse test: Pulse Width < 380μs, duty cycle < 2%.

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)} = -1.41E-8/V_{DS}² + 2.48E-9/V_{DS} + 4.81E-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.



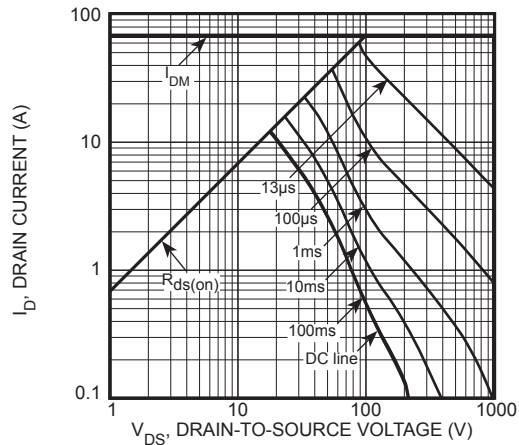


Figure 9, Forward Safe Operating Area

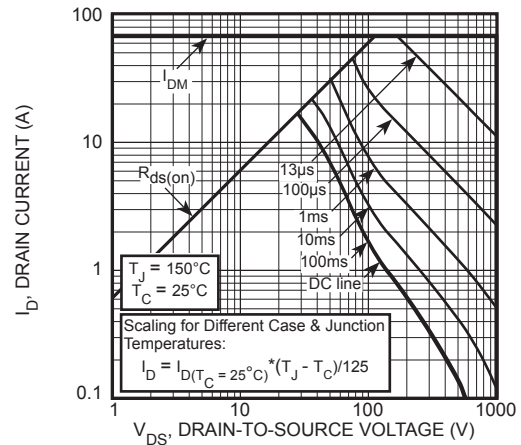


Figure 10, Maximum Forward Safe Operating Area

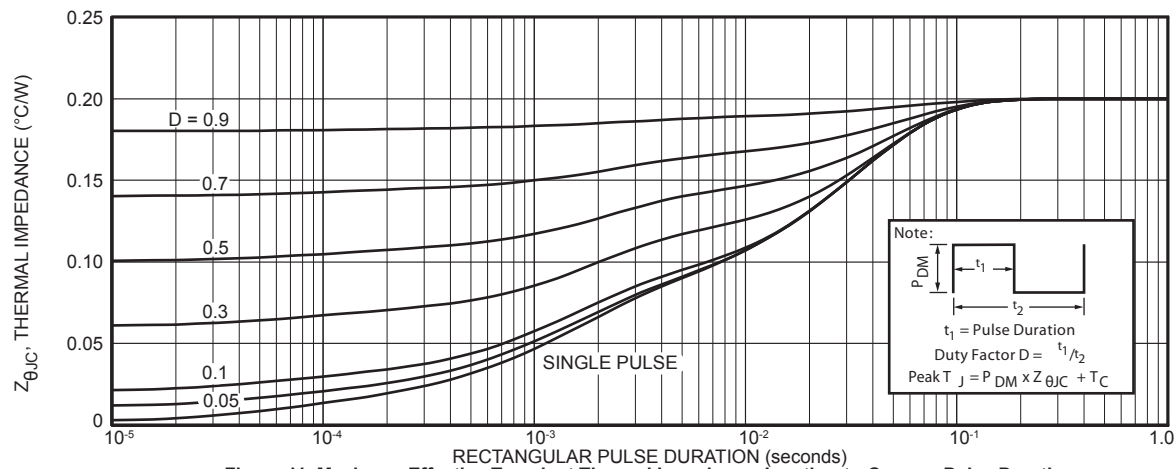
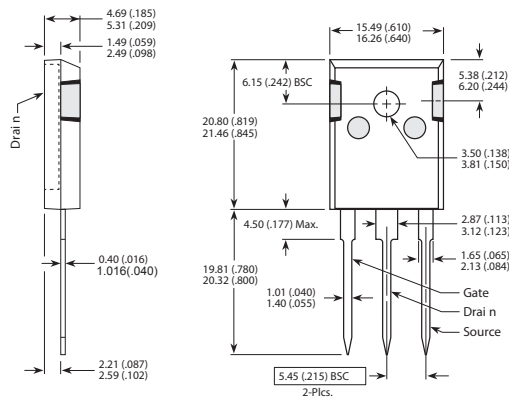


Figure 11. Maximum Effective Transient Thermal Impedance Junction-to-Case vs Pulse Duration

TO-247 (B) Package Outline

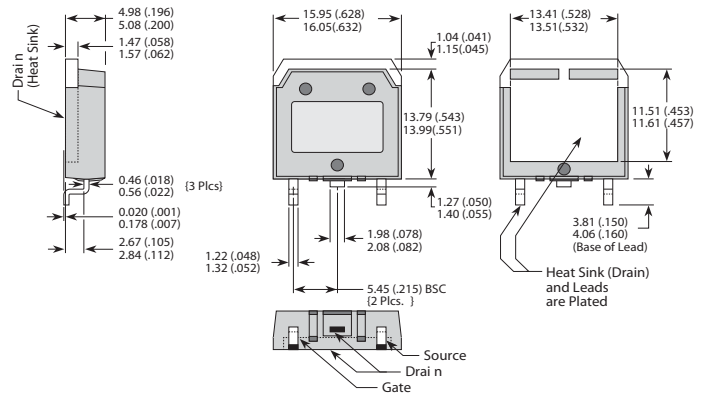
(e1) SAC: Tin, Silver, Copper



Dimensions in Millimeters (Inches)

D³PAK Package Outline

(e3) 100% Sn Plated



Dimensions in Millimeters (Inches)