

Static Characteristics

T_J = 25°C unless otherwise specified

APT28M120B2_L

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V _{BR(DSS)}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	1200			V
ΔV _{BR(DSS)} /ΔT _J	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D = 250μA		1.41		V/°C
R _{DS(on)}	Drain-Source On Resistance ^③	V _{GS} = 10V, I _D = 14A		0.45	0.53	Ω
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} = V _{DS} , I _D = 2.5mA	3	4	5	V
ΔV _{GS(th)} /ΔT _J	Threshold Voltage Temperature Coefficient			-10		mV/°C
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 1200V, T _J = 25°C V _{GS} = 0V, T _J = 125°C			100 500	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 = 14A		31		S
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 25V f = 1MHz		9670		pF
C _{rss}	Reverse Transfer Capacitance			115		
C _{oss}	Output Capacitance			715		
C _{o(cr)} ^④	Effective Output Capacitance, Charge Related	V _{GS} = 0V, V _{DS} = 0V to 800V		275		
C _{o(er)} ^⑤	Effective Output Capacitance, Energy Related			140		
Q _g	Total Gate Charge	V _{GS} = 0 to 10V, I _D = 14A, V _{DS} = 600V		300		nC
Q _{gs}	Gate-Source Charge			50		
Q _{gd}	Gate-Drain Charge			140		
t _{d(on)}	Turn-On Delay Time	Resistive Switching V _{DD} = 800V, I _D = 14A R _G = 2.2Ω ^⑥ , V _{GG} = 15V		50		ns
t _r	Current Rise Time			31		
t _{d(off)}	Turn-Off Delay Time			170		
t _f	Current Fall Time			48		

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)			29	A
I _{SM}	Pulsed Source Current (Body Diode) ^①				104	
V _{SD}	Diode Forward Voltage	I _{SD} = 14A, T _J = 25°C, V _{GS} = 0V			1	V
t _{rr}	Reverse Recovery Time	I _{SD} = 14A ^② di _{SD} /dt = 100A/μs, T _J = 25°C		1290		ns
Q _{rr}	Reverse Recovery Charge			33		μC
dv/dt	Peak Recovery dv/dt	I _{SD} ≤ 14A, di/dt ≤ 1000A/μs, V _{DD} = 100V, T _J = 125°C			10	V/ns

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

② Starting at T_J = 25°C, L = 22.09mH, R_G = 2.2Ω, I_{AS} = 14A.

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)} = -4.40E-7/V_{DS}² + 5.34E-8/V_{DS} + 7.59E-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.

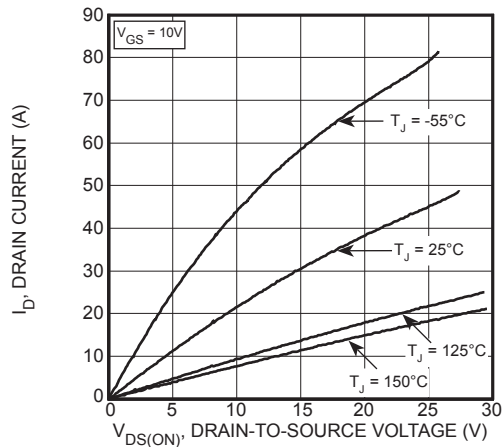


Figure 1, Output Characteristics

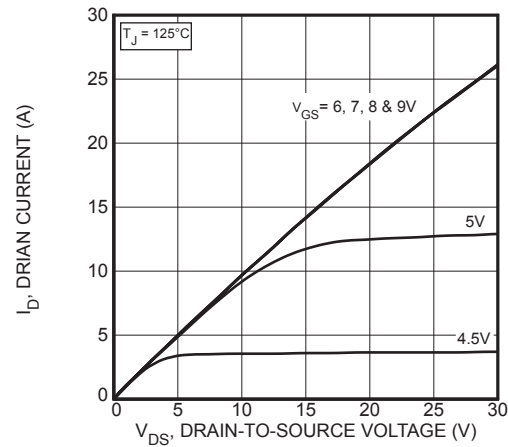


Figure 2, Output Characteristics

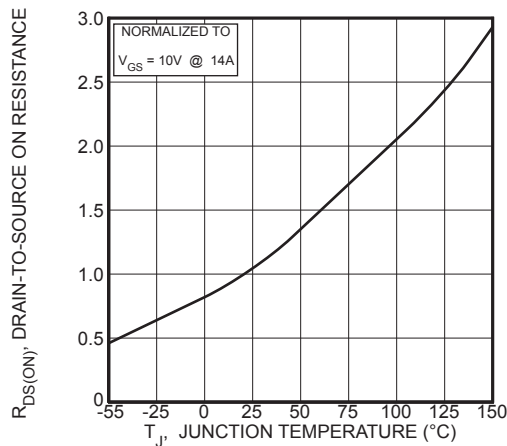
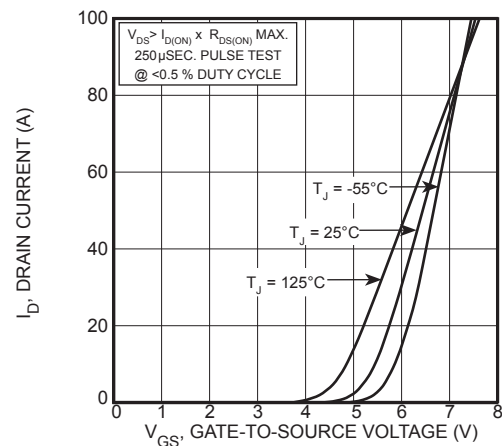
Figure 3, $R_{DS(ON)}$ vs Junction Temperature

Figure 4, Transfer Characteristics

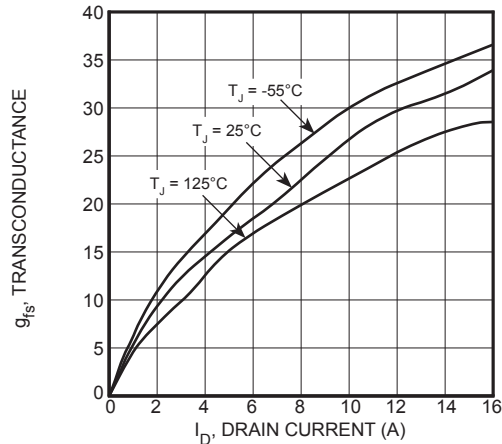


Figure 5, Gain vs Drain Current

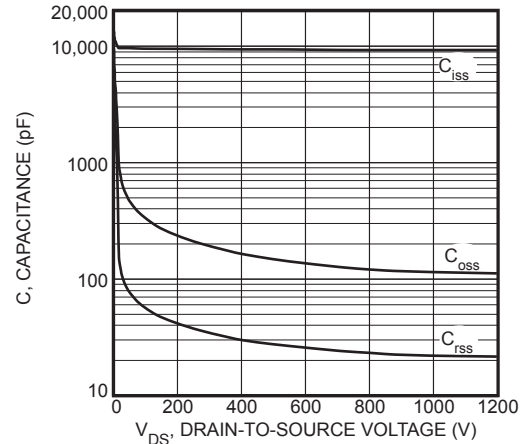


Figure 6, Capacitance vs Drain-to-Source Voltage

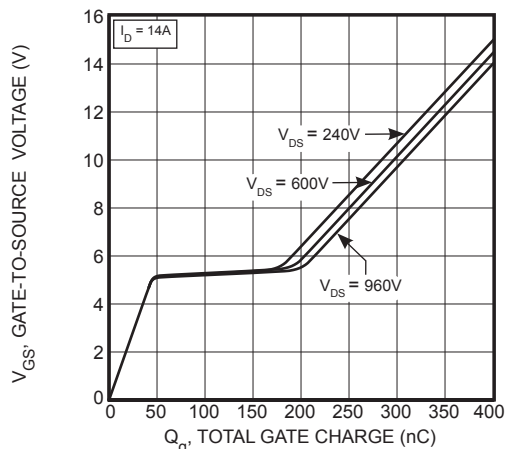


Figure 7, Gate Charge vs Gate-to-Source Voltage

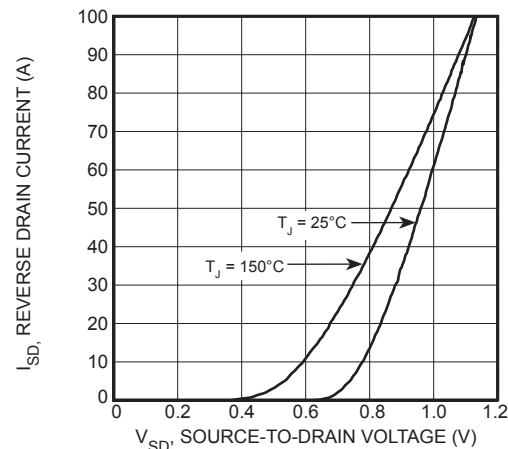
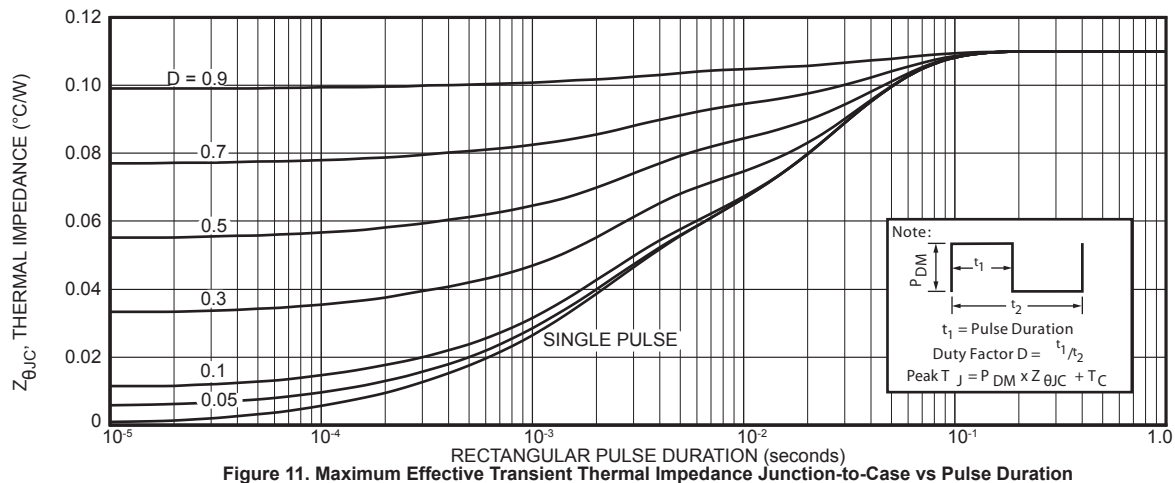
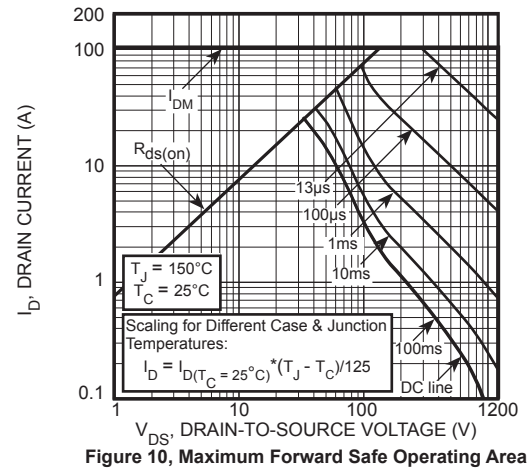
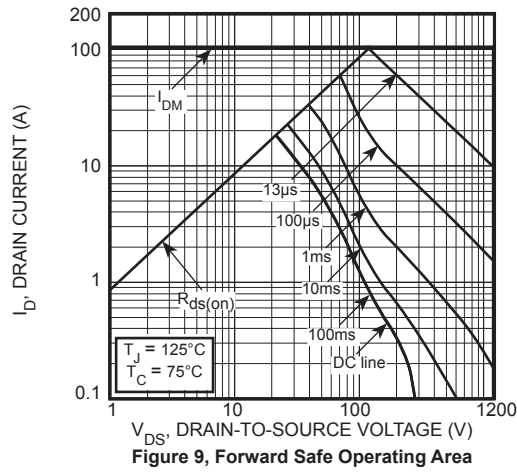
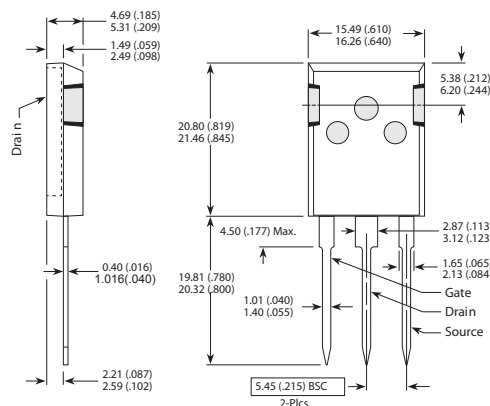


Figure 8, Reverse Drain Current vs Source-to-Drain Voltage



T-MAX® (B2) Package Outline

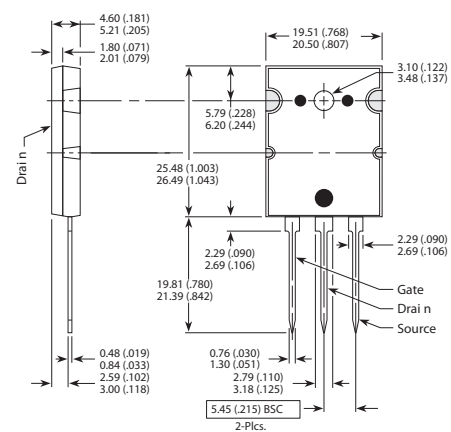
Ⓔ 100% Sn Plated



These dimensions are equal to the TO-247 without the mounting hole.

Dimensions in Millimeters (Inches)

TO-264 (L) Package Outline



Dimensions in Millimeters (Inches)