

Static Characteristics

T_J = 25°C unless otherwise specified

APT22F120B2_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 = 12A		0.53	0.70	Ω
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} = V _{DS} , I _D = 2.5mA	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} = 1200V, T _J = 25°C V _{GS} = 0V, T _J = 125°C			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 = 12A		27		S
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 25V f = 1MHz		8370		pF
C _{rss}	Reverse Transfer Capacitance			100		
C _{oss}	Output Capacitance			615		
C _{o(cr)} ^④	Effective Output Capacitance, Charge Related	V _{GS} = 0V, V _{DS} = 0V to 800V		240		
C _{o(er)} ^⑤	Effective Output Capacitance, Energy Related			125		
Q _g	Total Gate Charge	V _{GS} = 0 to 10V, I _D = 12A, V _{DS} = 600V		260		nC
Q _{gs}	Gate-Source Charge			42		
Q _{gd}	Gate-Drain Charge			120		
t _{d(on)}	Turn-On Delay Time	Resistive Switching V _{DD} = 800V, I _D = 12A R _G = 2.2Ω ^⑥ , V _{GG} = 15V		45		ns
t _r	Current Rise Time			27		
t _{d(off)}	Turn-Off Delay Time			145		
t _f	Current Fall Time			42		

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)			23	A
I _{SM}	Pulsed Source Current (Body Diode) ^①				90	
V _{SD}	Diode Forward Voltage	I _{SD} = 12A, T _J = 25°C, V _{GS} = 0V			1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} = 12A ^③ di _{SD} /dt = 100A/μs	T _J = 25°C	375	425	ns
			T _J = 125°C	720	850	
Q _{rr}	Reverse Recovery Charge		T _J = 25°C	2.2		μC
			T _J = 125°C	5.8		
I _{rrm}	Reverse Recovery Current		T _J = 25°C	12.3		A
			T _J = 125°C	16.5		
dv/dt	Peak Recovery dv/dt	I _{SD} ≤ 12A, di/dt ≤ 1000A/μs, V _{DD} = 800V, 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 = 26.04mH, R_G = 25Ω, I_{AS} = 12A.

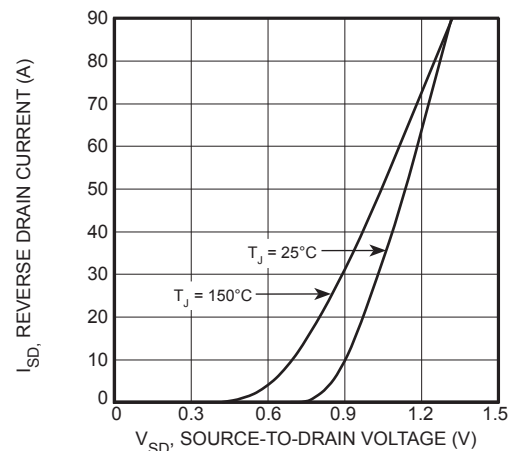
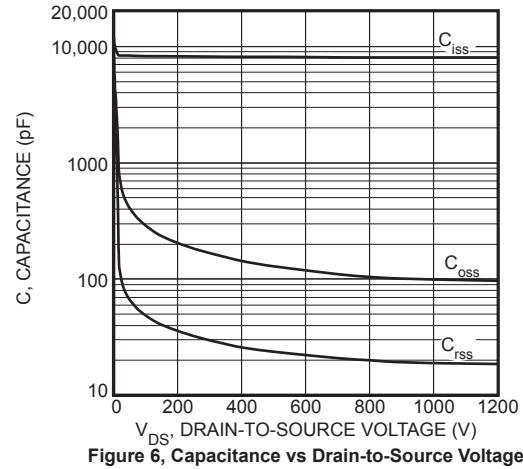
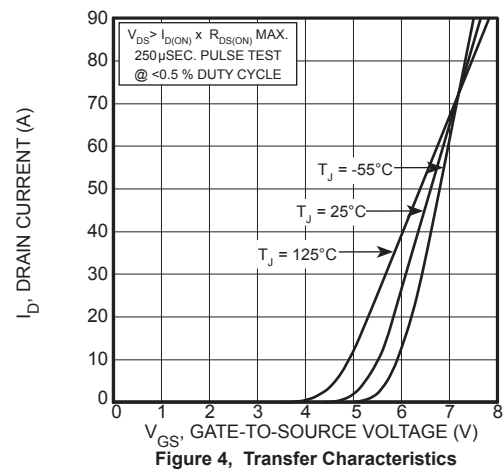
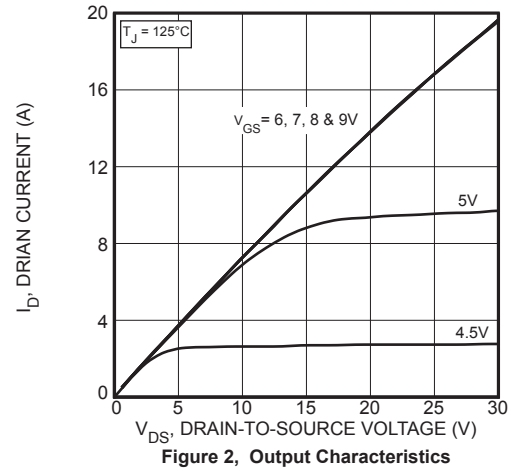
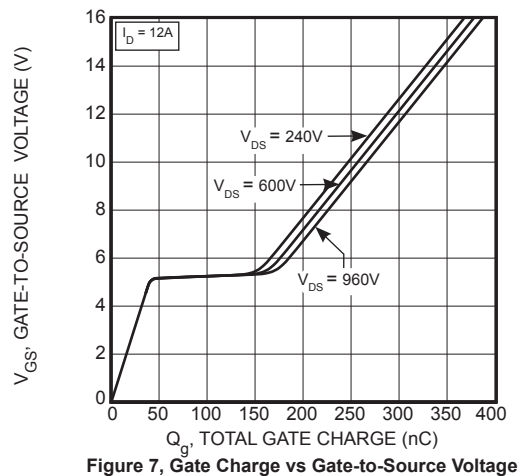
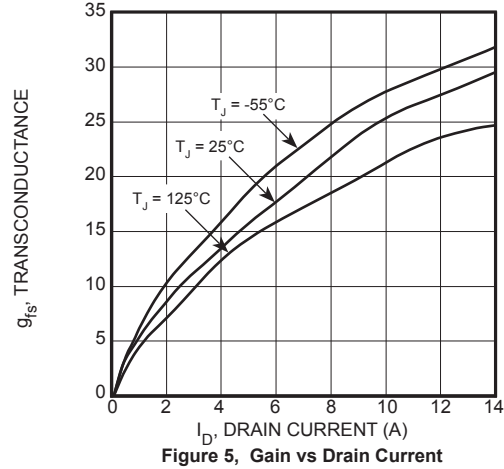
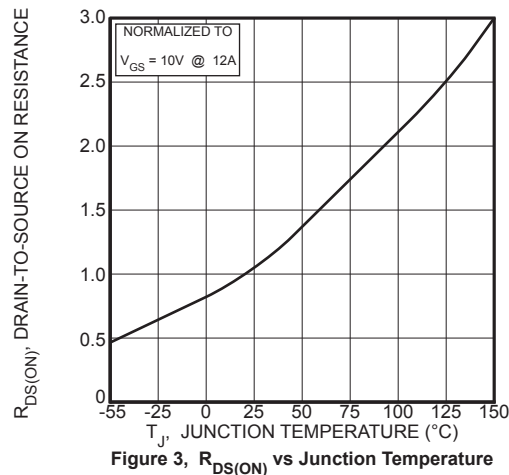
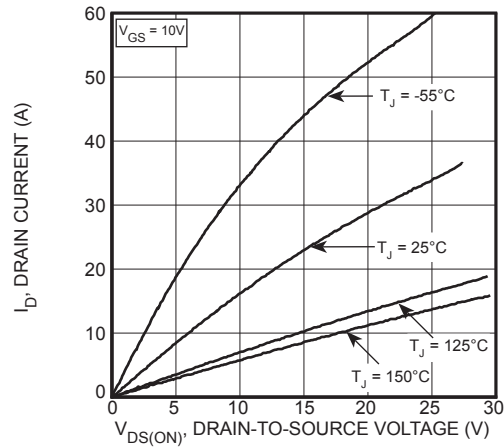
③ Pulse test: Pulse Width < 380μs, duty cycle < 2%.

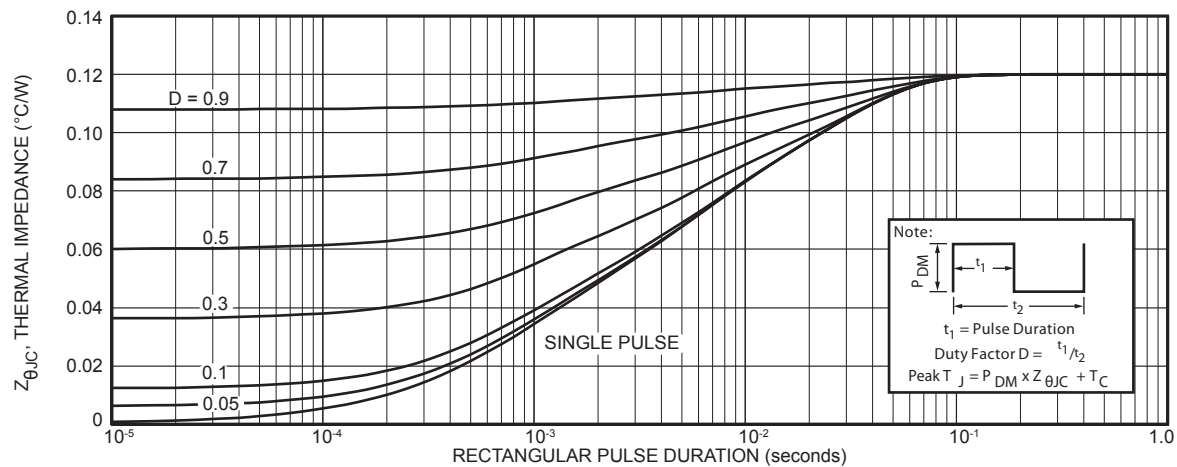
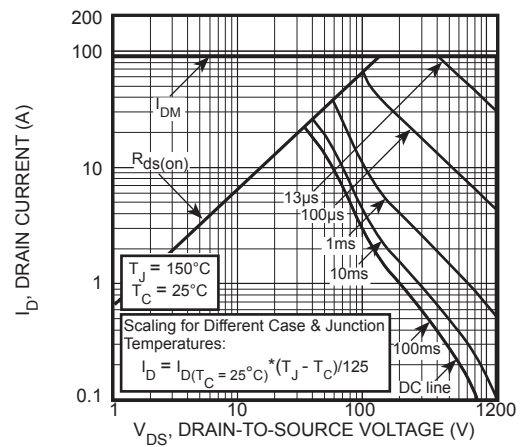
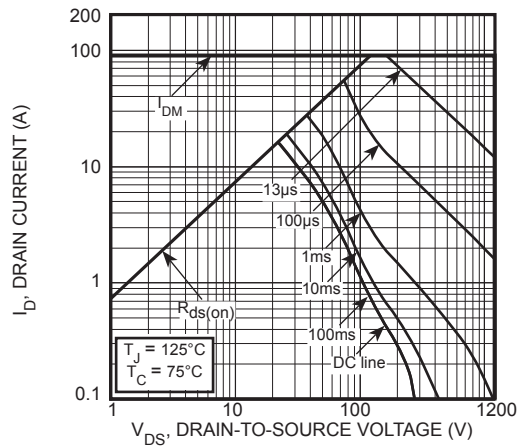
④ C_{o(cr)} is defined as a fixed capacitance with the same stored charge as C_{OSS} with V_{DS} = 67% of V_{(BR)DSS}.

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)} = -3.80E-7/V_{DS}² + 4.62E-8/V_{DS} + 6.57E-11.

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

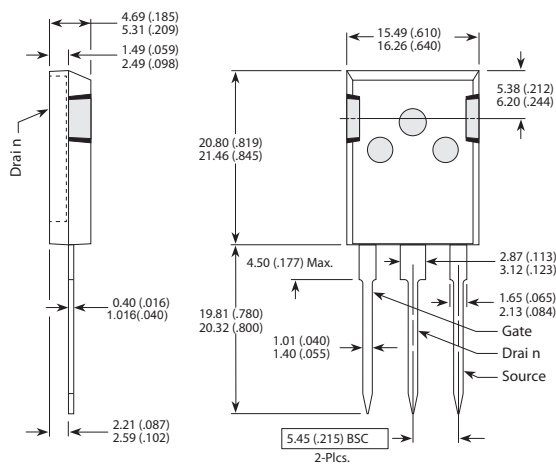
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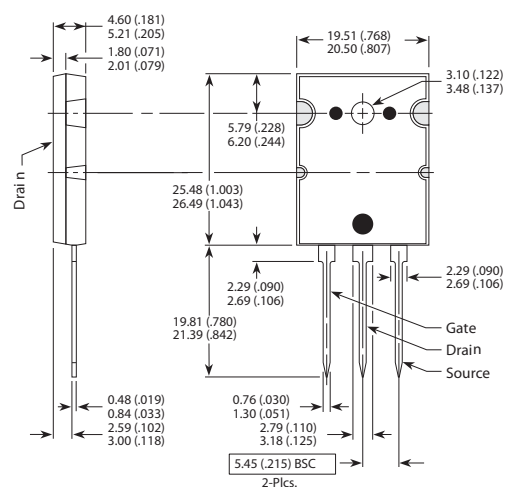
T-MAX® (B2) Package Outline

e3 100% Sn Plated



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)