

- Typ. $R_{DS(on)}$ (at $V_{GS} = 18V$)
- Ultra Low $R_{DS(on)}$
- Low Effective $R_{\theta(jc)}$
- 100% Avalanche
- AEC Q101 Qualified
- This Device is RoHS Compliant (see Figure 7a, Pb Free 2L) (or see Figure 7a, Pb Free 2L)

Typical Applications

- Automotive Fan Blower
- Automotive PFC Inductor

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	650	V
Gate-to-Source Voltage	V_{GS}	-8/+22	V
Recommended Operating Voltage of Gate - Source	V_{GSop}	-5/+18	V
Continuous Drain Current (Note 2)	I_D	62	A
Power Dissipation (Note 2)	P_D	242	W
Continuous Drain Current (Notes 1, 2)	I_D	44	A
Power Dissipation (Notes 1, 2)	P_D	121	W
Pulsed Drain Current (Notes 1, 2)	I_{DM}	184	A
Single Pulse Surge Drain Current Capability			

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4. E_{AS} of 72 mJ is based on starting $T_J = 25^\circ\text{C}$; $L = 1\text{ mH}$, $I_{AS} = 12\text{ A}$, $V_{DD} = 50\text{ V}$, $V_{GS} = 18\text{ V}$.

THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-to-Case (Note 2)	$R_{\theta JC}$	0.62	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Ambient (Notes 1, 2)	$R_{\theta JA}$	40	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}$, $I_D = 1\text{ mA}$	650			V
Drain-to-Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$	$I_D = 20\text{ mA}$, refer to 25°C		0.13		$\text{V}/^\circ\text{C}$
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS} = 0\text{ V}$, $V_{DS} = 650\text{ V}$			10	

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ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise stated)(continued)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS						
Reverse Recovery Time	t_{RR}	$V_{GS} = -5/18\text{ V}$, $I_{SD} = 25\text{ A}$, $dI_S/dt = 1000\text{ A}/\mu\text{s}$		20		ns
Reverse Recovery Charge	Q_{RR}			100		nC
Reverse Recovery Energy	E_{REC}			3.8		μJ
Peak Reverse Recovery Current	I_{RRM}			10		A
Charge Time	T_a			11		ns
Discharge Time	T_b			8.7		ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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TYPICAL CHARACTERISTICS

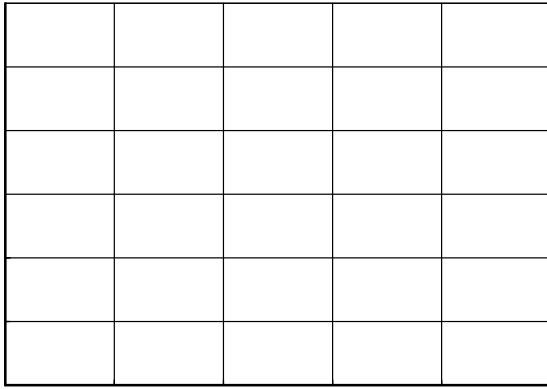


Figure 1. On-Region Characteristics

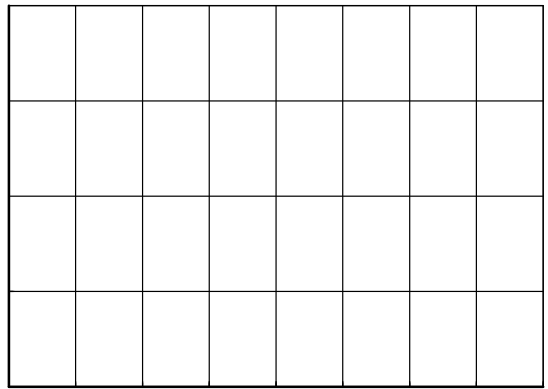


Figure 2. Normalized On-Resistance vs. Drain Current and Gate Voltage

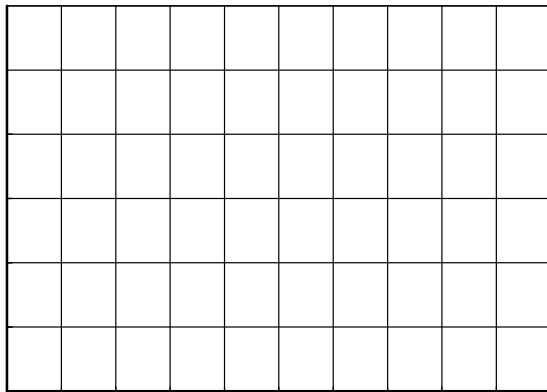
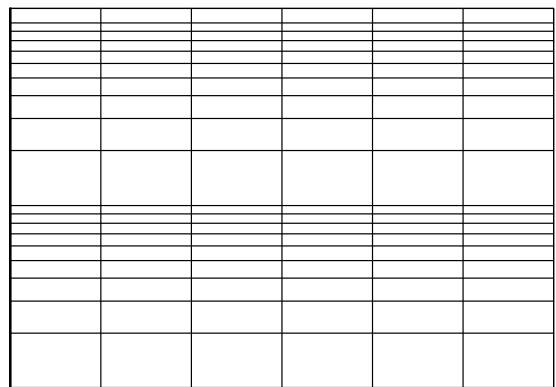
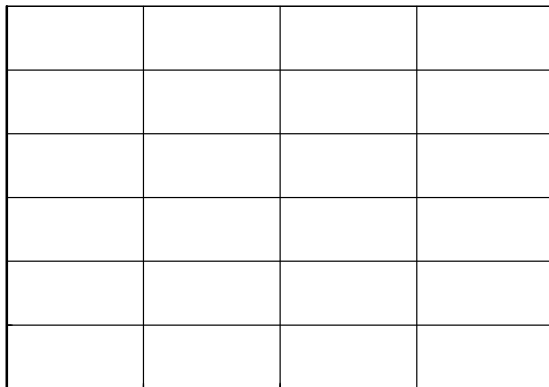
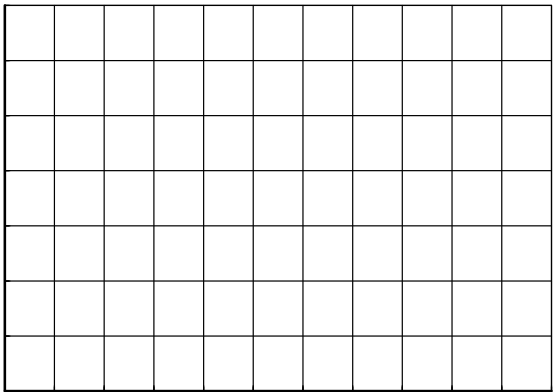


Figure 3. On-



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TYPICAL CHARACTERISTICS (continued)

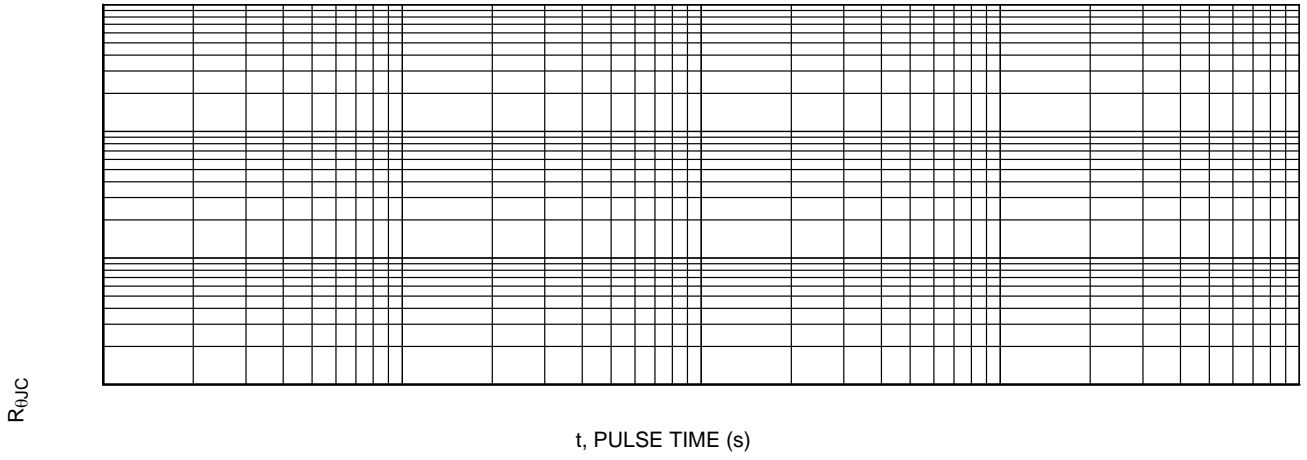


Figure 13. Junction-to-Case Transient Thermal Response

D²PAK7 (TO-263-7L HV)
CASE 418BJ
ISSUE B

DATE 16 AUG 2019

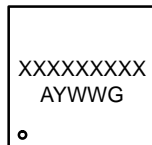
A

c2

H

C

**GENERIC
MARKING DIAGRAM***



XXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "◦", may or may not be present. Some products may not follow the Generic Marking.

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