

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	2.7mΩ@-4.5V	-100A
	3.8mΩ@-2.5V	
	5.7mΩ@-1.8V	

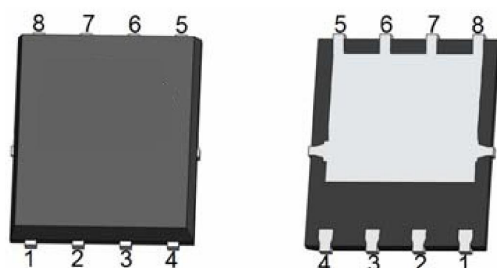
Feature

- Advanced trench technology
- Excellent $R_{DS(on)}$
- Low gate charge

Application

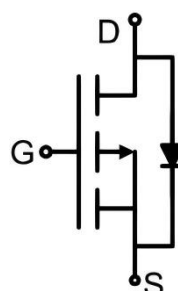
- Battery protection
- Load switch
- Uninterruptible power supply

Package

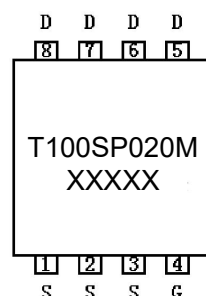


PDFN5*6-8L

Circuit diagram



Marking



Absolute maximum ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current ¹⁾ (V _{GS} =-10V)	I _D	-100	A
Continuous Drain Current ¹⁾ (V _{GS} =-10V, T _c =100°C)	I _D (100°C)	-66	A
Pulsed Drain Current ²⁾	I _{DM}	-340	A
Single Pulse Avalanche Energy ³⁾	E _{AS}	400	mJ
Power Dissipation ⁴⁾	P _D	52.1	W
Thermal Resistance Junction to Case ¹⁾	R _{θJC}	2.4	°C/W
Operating Junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_J=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.6	-1	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-30A		2.1	2.7	mΩ
		V _{GS} =-2.5V, I _D =-20A		2.7	3.8	
		V _{GS} =-1.8V, I _D =-15A		3.8	5.7	
Dynamic characteristics ⁵⁾						
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f =1MHz		15000		pF
Output Capacitance	C _{oss}			1600		
Reverse Transfer Capacitance	C _{rss}			1068		
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V I _D =-20A		100		nC
Gate-Source Charge	Q _{gs}			21		
Gate-Drain Charge	Q _{gd}			32		
Turn-on delay time	t _{d(on)}	V _{DS} =-10V, V _{GS} =-4.5V R _L =0.5Ω, R _G =3Ω		20		nS
Turn-on rise time	t _r			50		
Turn-off delay time	t _{d(off)}			100		
Turn-off fall time	t _f			40		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-100	A
Diode Forward voltage	V _{SD}	V _{DS} =0V, I _S =-30A			-1.2	V

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2) The data tested by pulsed , pulse width ≤300us , duty cycle ≤2%.
- 3) The EAS data shows Max. rating . The test condition is V_{DD}=-16V, V_{GS}=-4.5V, L=0.1mH, I_{AS}=-50A.
- 4) The power dissipation is limited by 150°C junction temperature.
- 5) Guaranteed by design, not subject to production.

Typical Characteristics

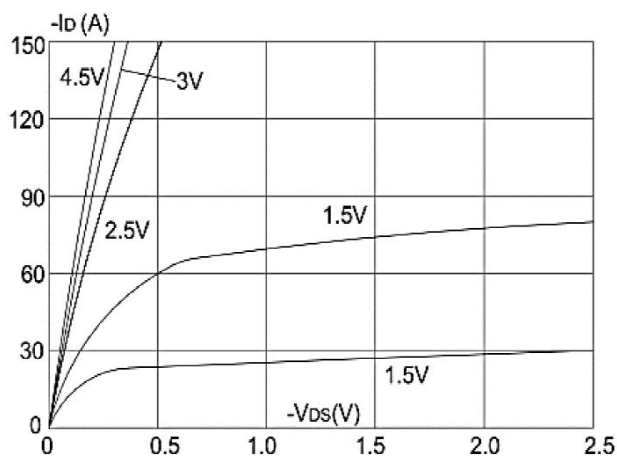


Figure1: Output Characteristics

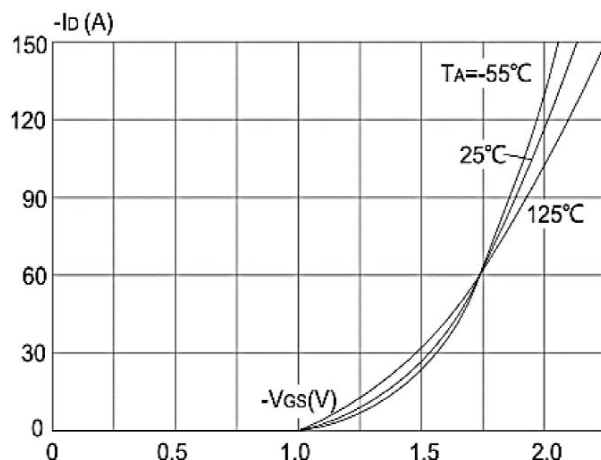


Figure 2: Typical Transfer Characteristics

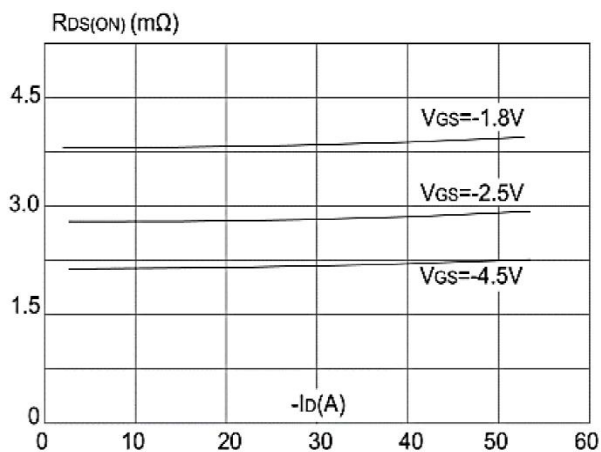


Figure 3: On-resistance vs. Drain Current

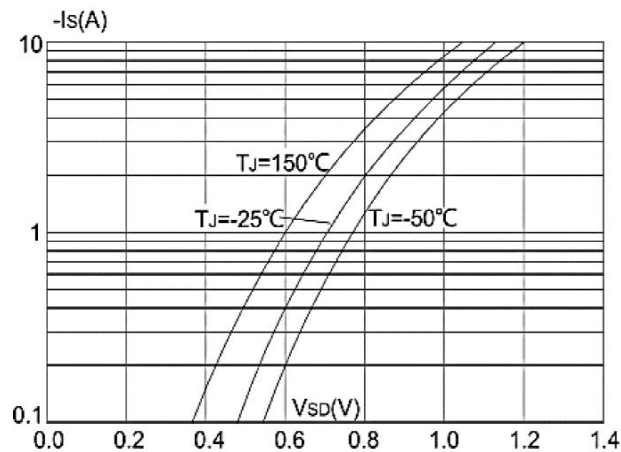


Figure 4: Body Diode Characteristics

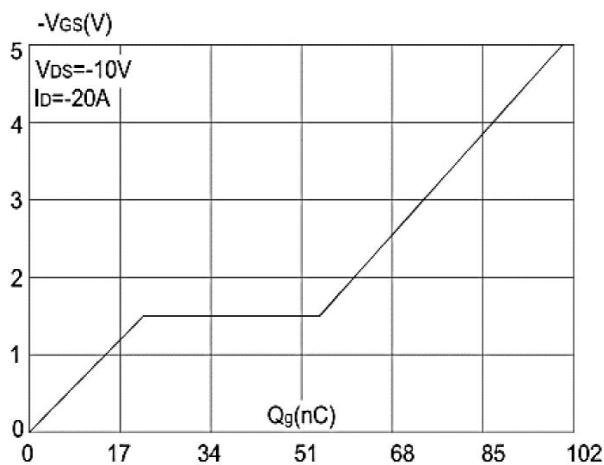


Figure 5: Gate Charge Characteristics

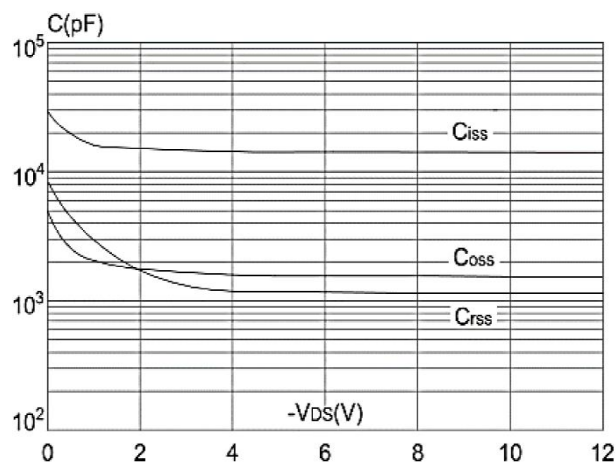


Figure 6: Capacitance Characteristics

Typical Characteristics

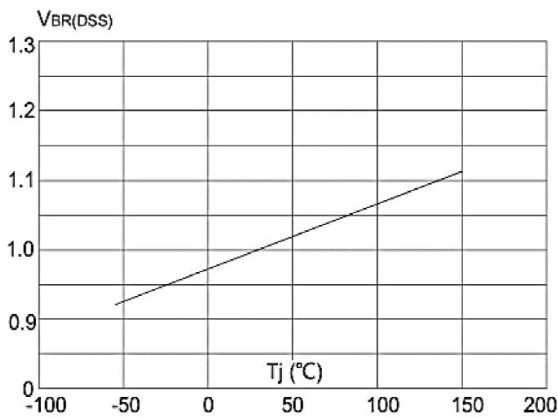


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

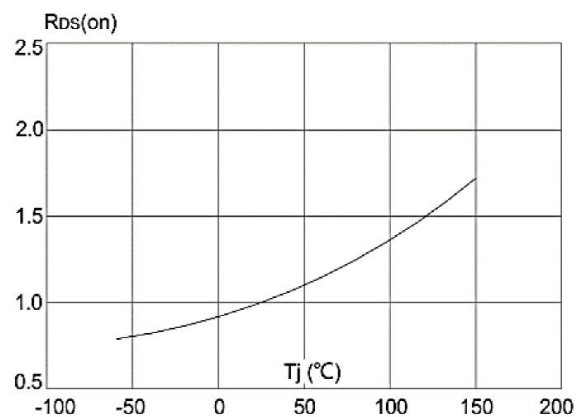


Figure 8: Normalized on Resistance vs. Junction Temperature

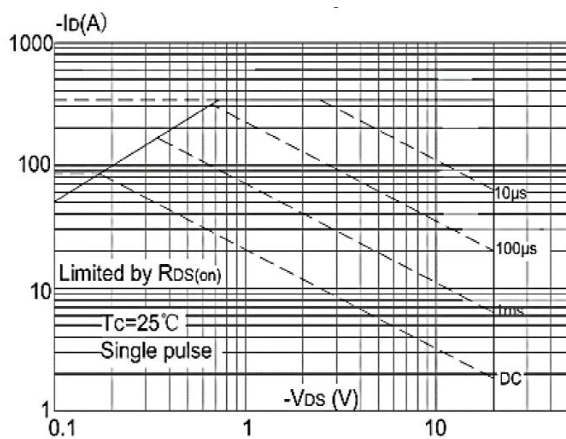


Figure 9: Maximum Safe Operating Area

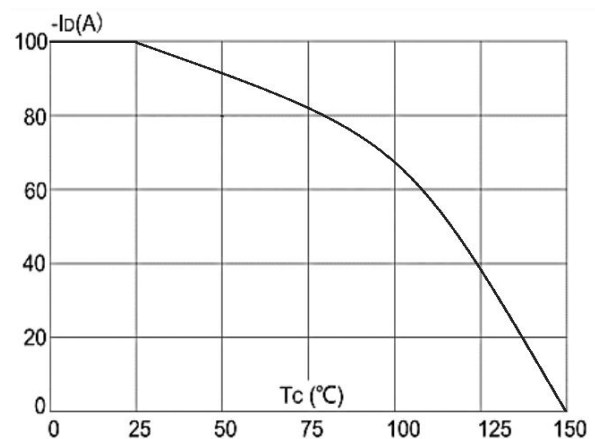


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

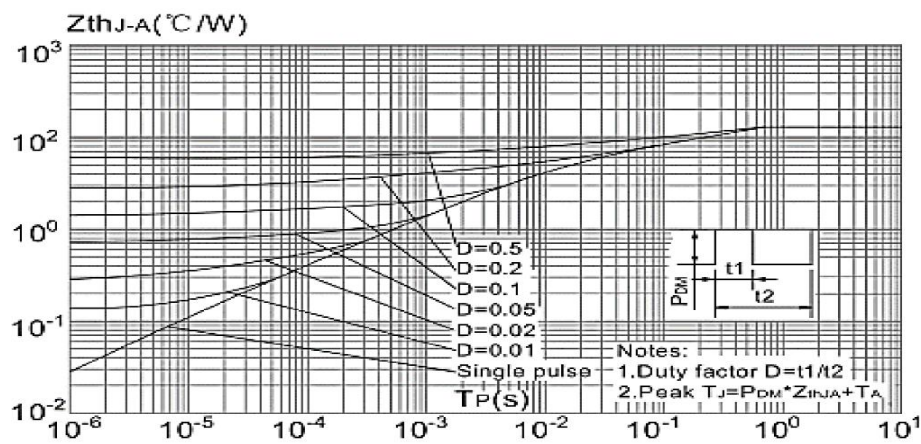
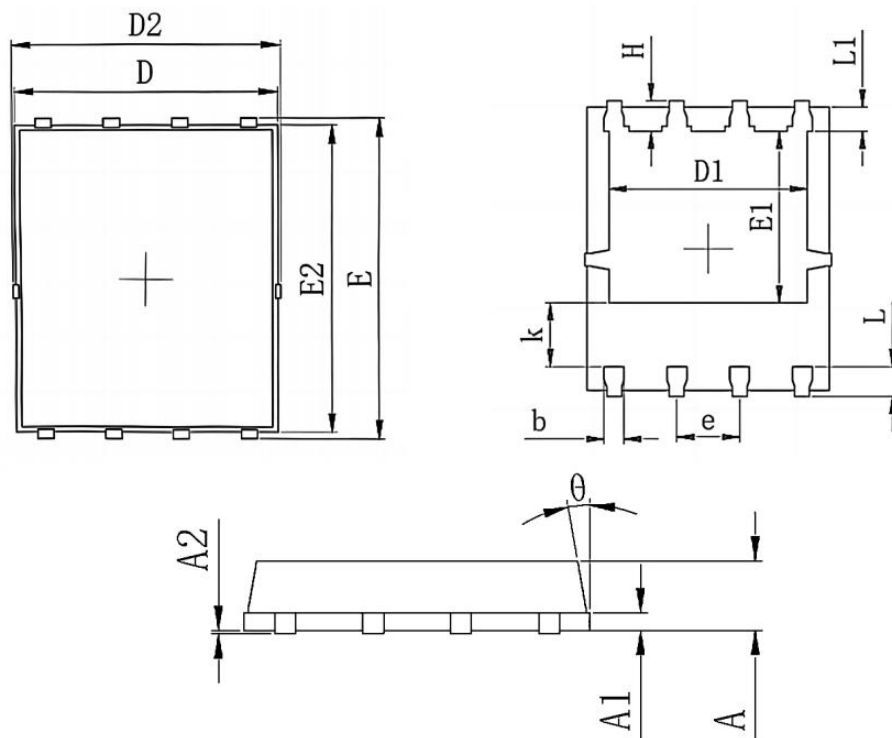


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

PDFN5*6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.254 REF.		0.010 REF.	
A2	0.000	0.050	0.000	0.002
D	4.824	4.976	0.190	0.196
D1	3.910	4.110	0.154	0.162
D2	4.944	5.076	0.195	0.200
E	5.924	6.076	0.233	0.239
E1	3.375	3.575	0.133	0.141
E2	5.674	5.826	0.223	0.229
b	0.350	0.450	0.014	0.018
e	1.270 BSC.		0.050 BSC.	
L	0.534	0.686	0.021	0.027
L1	0.424	0.576	0.017	0.023
K	1.190	1.390	0.047	0.055
H	0.549	0.701	0.022	0.028
φ	8°	12°	8°	12°