

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-200V	0.85Ω@-10V	-10A
	1.1Ω@-6V	

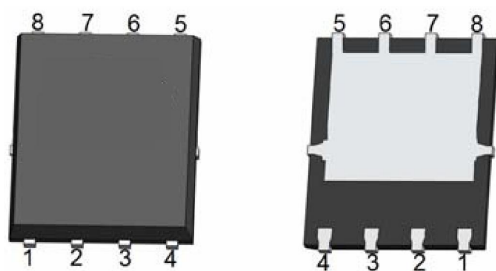
Feature

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

Application

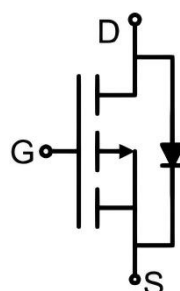
- Brushless motor
- Load switch
- Uninterruptible power supply

Package

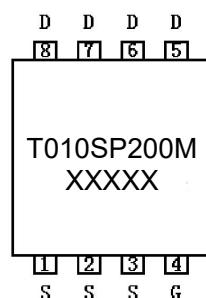


PDFN5*6-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-200	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹⁾ (V _{GS} =-10V)	I _D	-10	A
Continuous Drain Current ¹⁾ (V _{GS} =-10V, T _C =70°C)	I _D (70°C)	-4.8	A
Pulsed Drain Current ²⁾	I _{DM}	-30	A
Single Pulse Avalanche Energy ³⁾	E _{AS}	5	mJ
Power Dissipation ⁴⁾	P _D	52	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	-200			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-200V, V _{GS} =0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-2	-3	-4	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-1A		0.62	0.85	Ω
		V _{GS} =-6V, I _D =-1A		0.88	1.1	
Dynamic characteristics ⁵⁾						
Input Capacitance	C _{iss}	V _{DS} =-50V, V _{GS} =0V, f =1MHz		666		pF
Output Capacitance	C _{oss}			36		
Reverse Transfer Capacitance	C _{rss}			25		
Total Gate Charge	Q _g	V _{DS} =-100V, V _{GS} =-10V I _D =-1A		16.2		nC
Gate-Source Charge	Q _{gs}	V _{DS} =-100V, V _{GS} =-6V		2.5		
Gate-Drain Charge	Q _{gd}	I _D =-1A		4.9		
Turn-on delay time	t _{d(on)}	V _{DS} =-100V, V _{GS} =-10V R _L =100Ω, R _G =1Ω		9		nS
Turn-on rise time	t _r			11		
Turn-off delay time	t _{d(off)}			27		
Turn-off fall time	t _f			12		
Source-Drain Diode characteristics						
Diode Forward Current	I _S	T _C =25℃			-10	A
Diode Forward voltage	V _{SD}	I _S =-1A			-1.2	V
Reverse recover time	T _{rr}	I _S =-4A, di/dt =-100A/us		66		nS
Reverse recovery charge	Q _{rr}			215		nC

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z 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} =-50V, V_{GS} =-10V, L=0.5mH, I_{AS} =-5A.
- 4) The power dissipation is limited by 150°C junction temperature.
- 5) Guaranteed by design, not subject to production.

Typical Characteristics

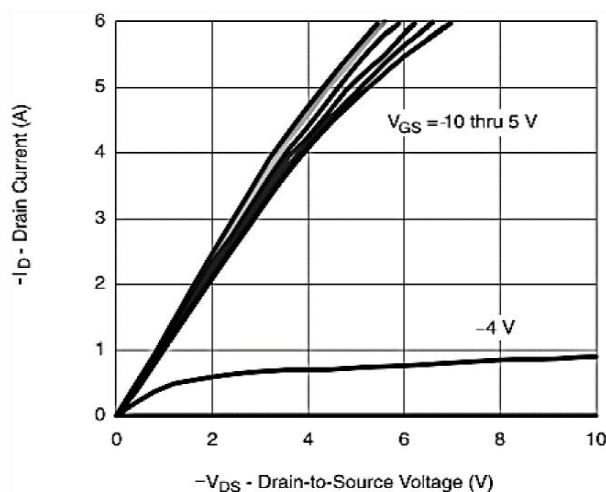


Fig1: Output Characteristics

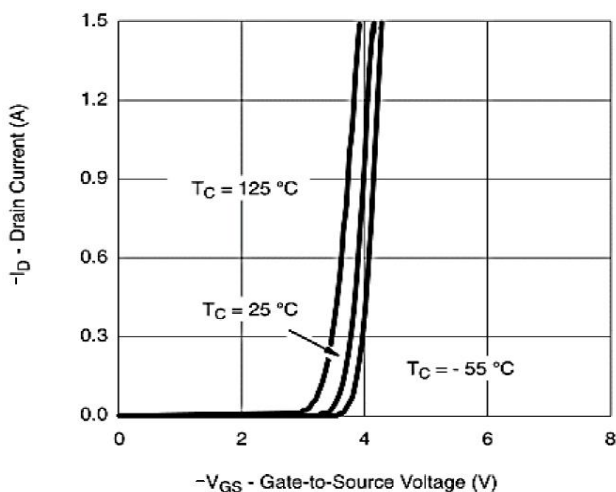


Fig2: Transfer Characteristics

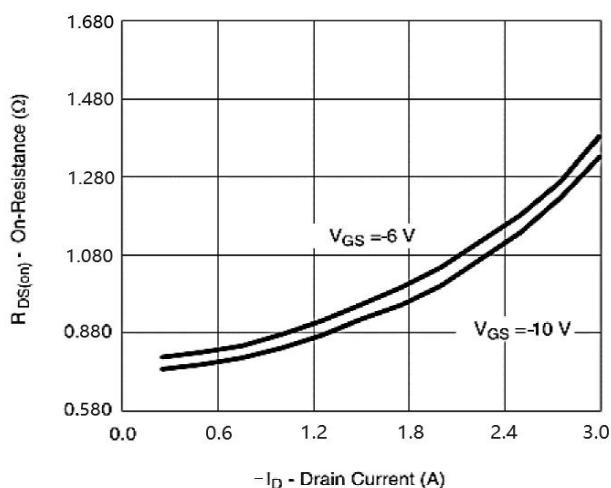


Fig3: On-Resistance vs. Drain Current

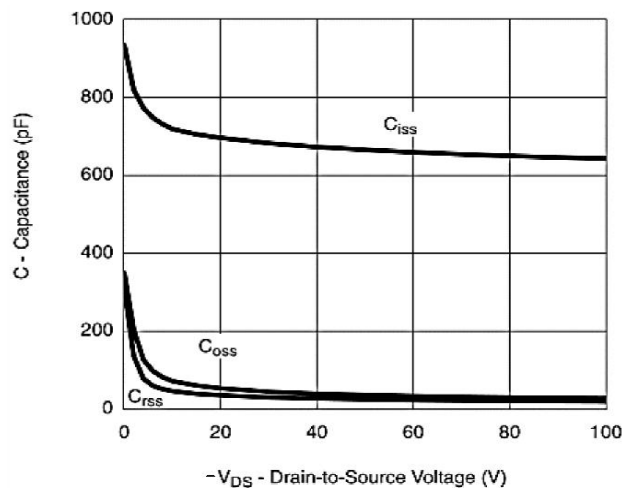


Fig4: Capacitance

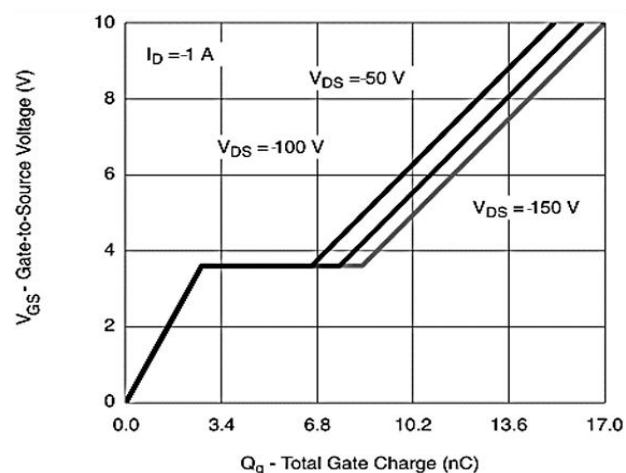


Fig5: Gate Charge

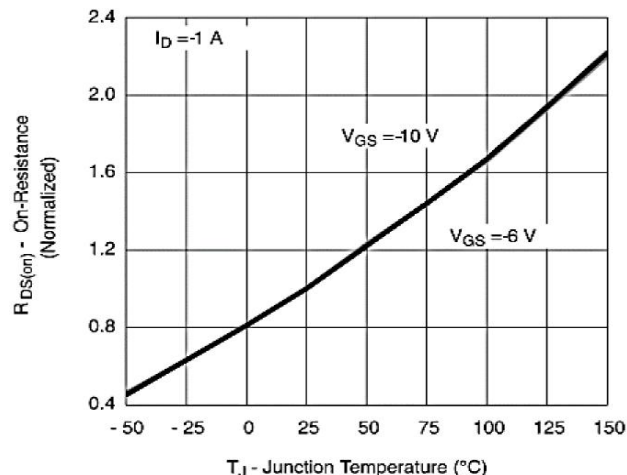


Fig6: On-Resistance vs. Junction Temperature

Typical Characteristics

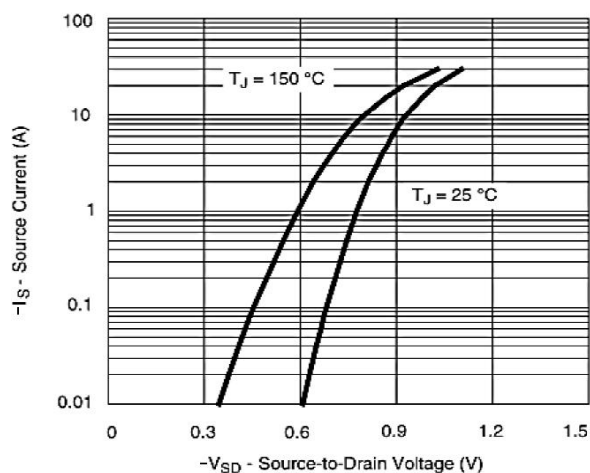


Fig7: Source-Drain Diode Forward Voltage

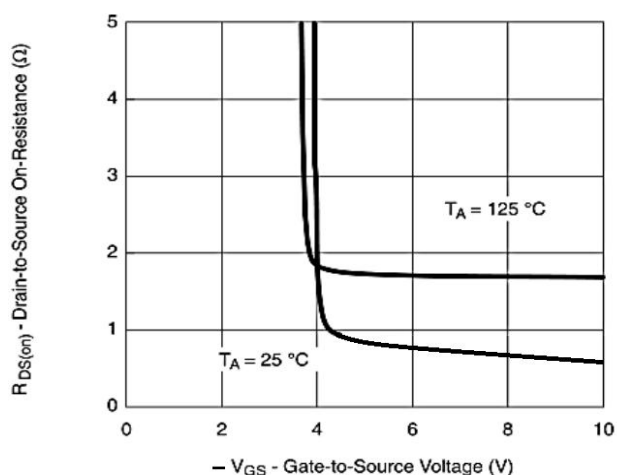


Fig8: On-Resistance vs. Gate-to-Source Voltage

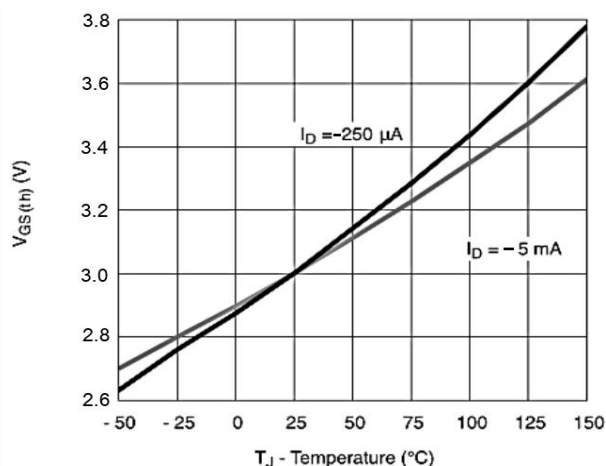


Fig9: Threshold Voltage

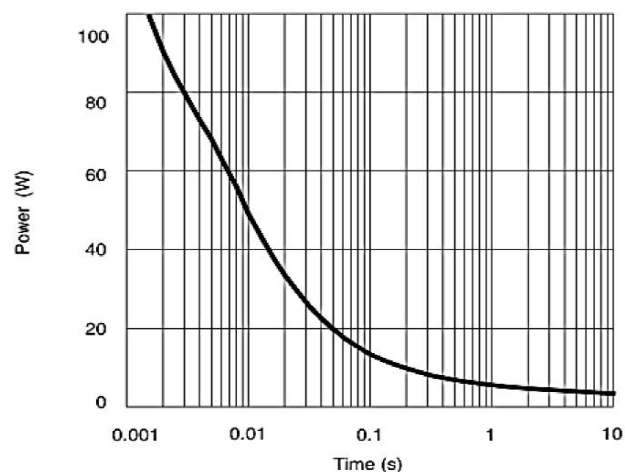


Fig10: Single Pulse Power, Junction-to-Ambient

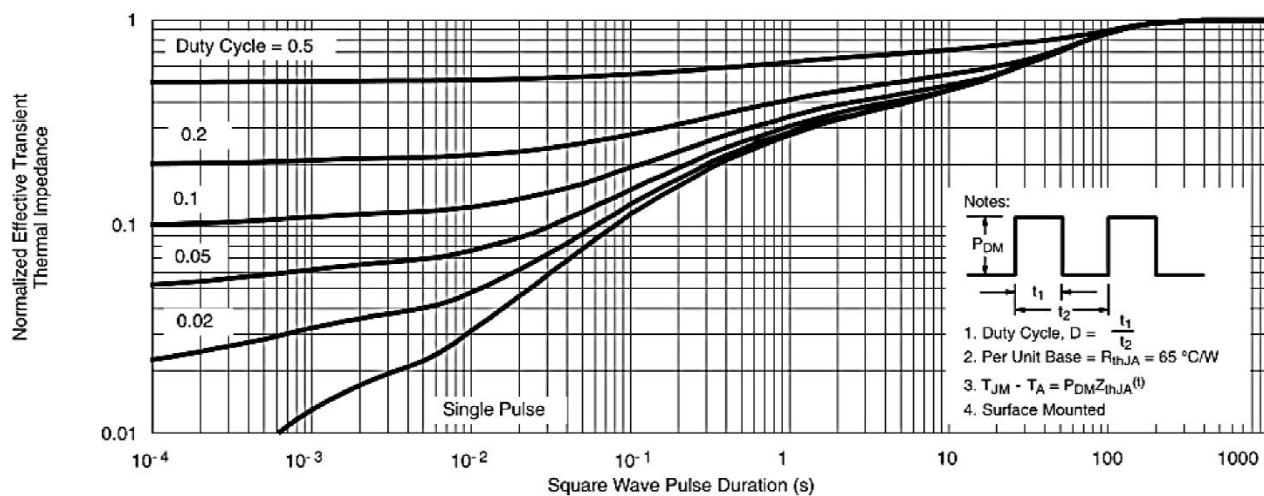
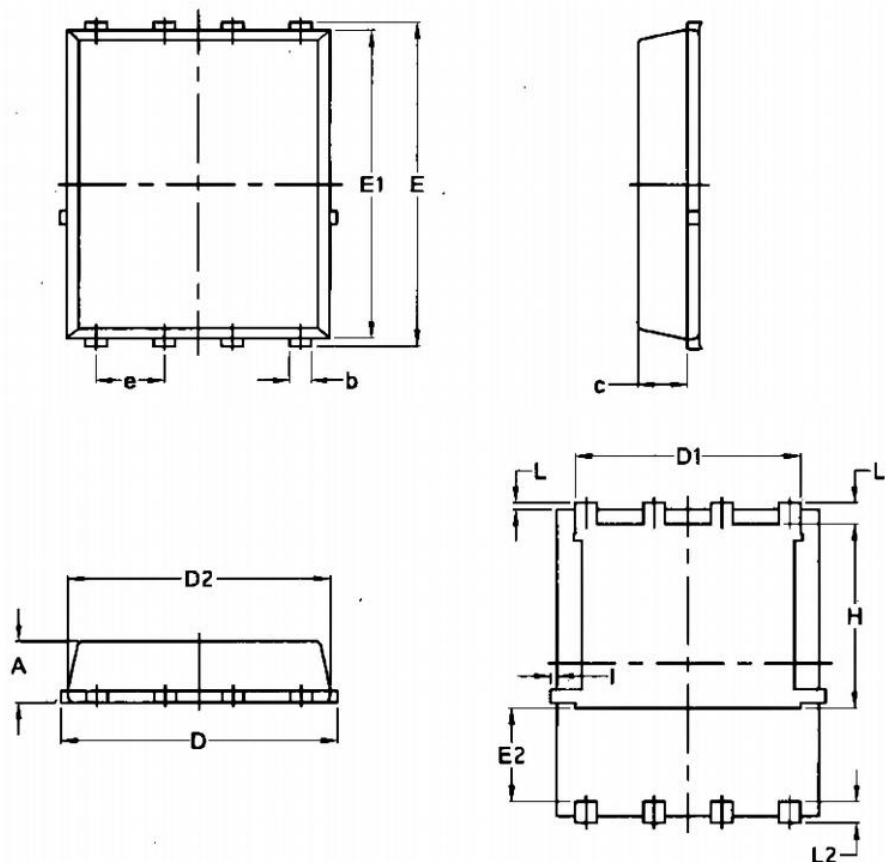


Fig11: Normalized Thermal Transient Impedance, Junction-to-Ambient

PDFN5*6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.030	1.170	0.040	0.046
b	0.340	0.480	0.013	0.019
c	0.824	0.097	0.032	0.004
D	4.800	5.400	0.189	0.213
D1	4.110	4.310	0.162	0.170
D2	4.800	5.000	0.189	0.197
E	5.950	6.150	0.234	0.242
E1	5.650	5.850	0.222	0.230
E2	1.600	-	0.063	-
e	1.270 BSC		0.050 BSC	
L	0.050	0.250	0.002	0.010
L1	0.380	0.500	0.015	0.020
L2	0.380	0.500	0.015	0.020
H	3.300	3.500	0.130	0.138
I	0.000	0.180	0.000	0.007