AT100SP060MPF

P-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-60V	8.5mΩ@-10V	-100A
	10mΩ@-4.5V	

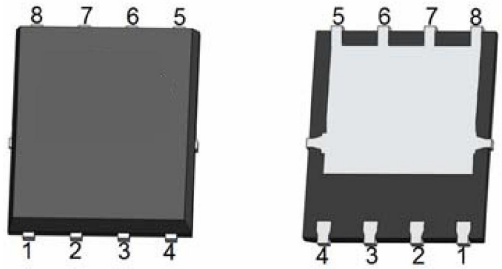
Feature

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

Application

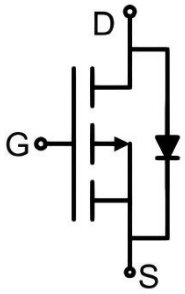
- Battery protection
- Load switch

Package

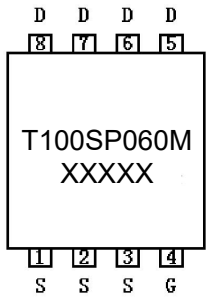


PDFN5*6-8L

Circuit diagram



Marking



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Absolute maximum ratings (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1] (V_{GS}=-10V)	I_D	-100	A
Continuous Drain Current[1] (V_{GS}=-10V, T_C =100℃)	I_D (100℃)	-65	A
Pulsed Drain Current[2]	I_{DM}	-300	A
Single Pulse Avalanche Energy[3]	E_{AS}	650	mJ
Power Dissipation[4]	P_D	142	W
Thermal Resistance Junction to Case[1]	$R_{\theta JC}$	0.88	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature Range	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_C=25℃, 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	-60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-60V, V_{GS} =0V, T_J =25℃			-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	-1.2	-1.6	-2.5	V
Drain-source on-resistance[2]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-20A		6.8	8.5	mΩ
		V_{GS} =-4.5V, I_D =-15A		7.8	10	
Dynamic characteristics[5]						
Input Capacitance	C_{iss}	V_{DS} =-25V, V_{GS} =0V, f =1MHz		8620		pF
Output Capacitance	C_{oss}			486		
Reverse Transfer Capacitance	C_{rss}			288		
Total Gate Charge	Q_g	V_{DS} =-48V, V_{GS} =-10V I_D =-5A		141		nC
Gate-Source Charge	Q_{gs}			17		
Gate-Drain Charge	Q_{gd}			28.6		
Turn-on delay time	$t_{d(on)}$	V_{DS} =-48V, V_{GS}=-10V I_D =-1A, R_G =6Ω		70		nS
Turn-on rise time	t_r			205		
Turn-off delay time	$t_{d(off)}$			402		
Turn-off fall time	t_f			402		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				-100	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =-1A, T_J =25℃			-1.2	V

Notes:

1) The data tested by surface mounted on a 1 inch ^{2} 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} =-48V, V_{GS}=-10V, L =0.1mH, I_{AS} =-80A.

4) The power dissipation is limited by 150℃ junction temperature.

5) Guaranteed by design, not subject to production.

Typical Characteristics

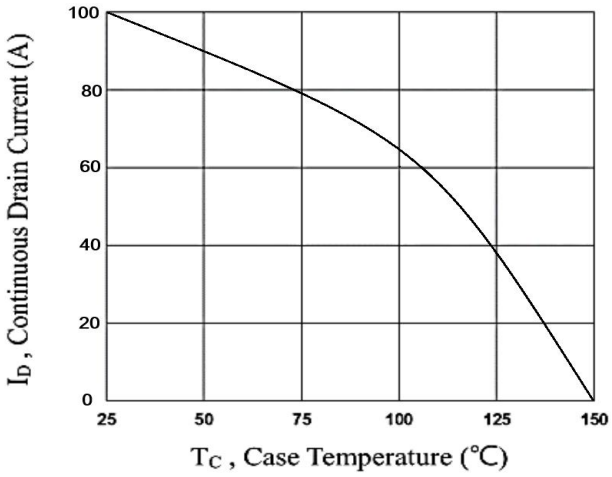


Fig.1Typical Output Characteristics

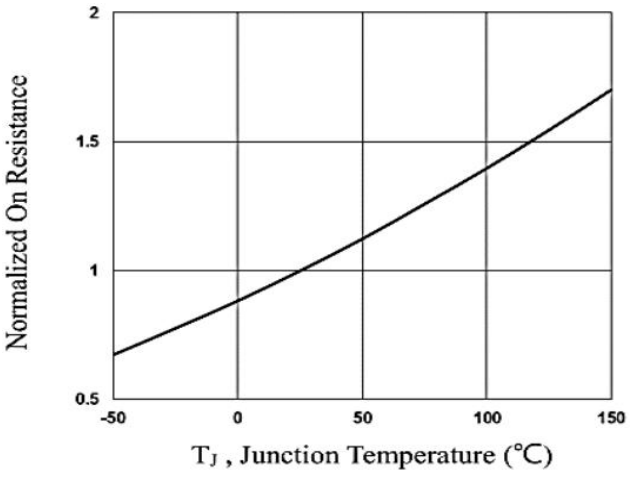


Fig.2 Normalized RDSON vs. TJ

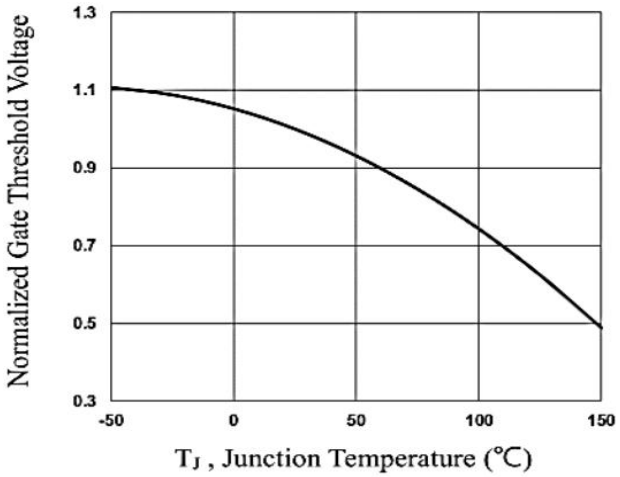


Fig.3 Normalized RDSON vs. TJ

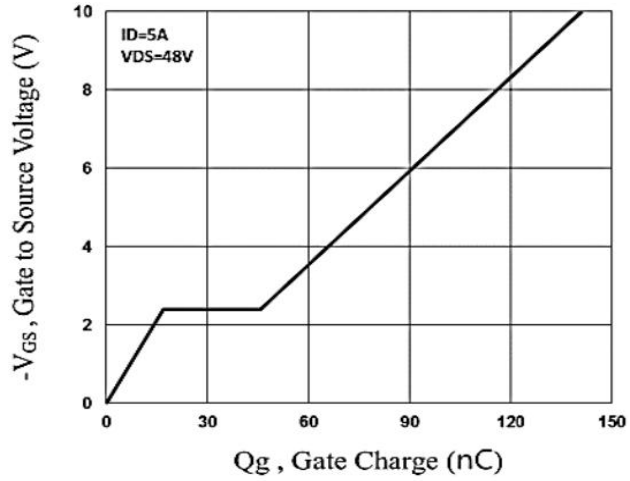


Fig.4 Normalized Vth vs. TJ

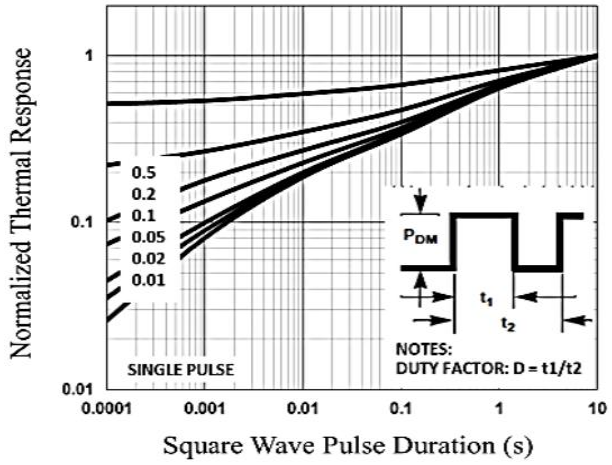


Fig.5 Normalized Transient Impedanc

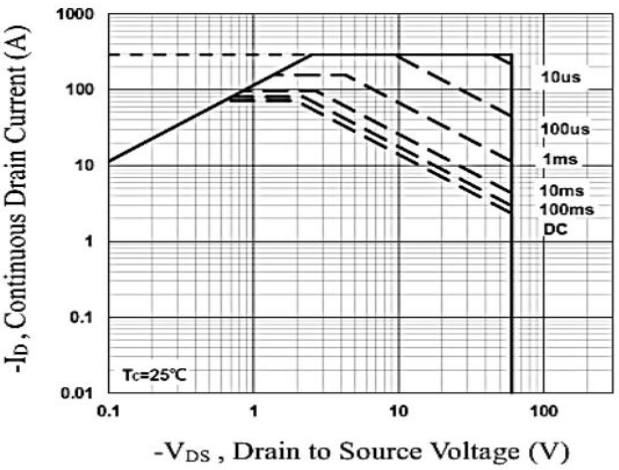
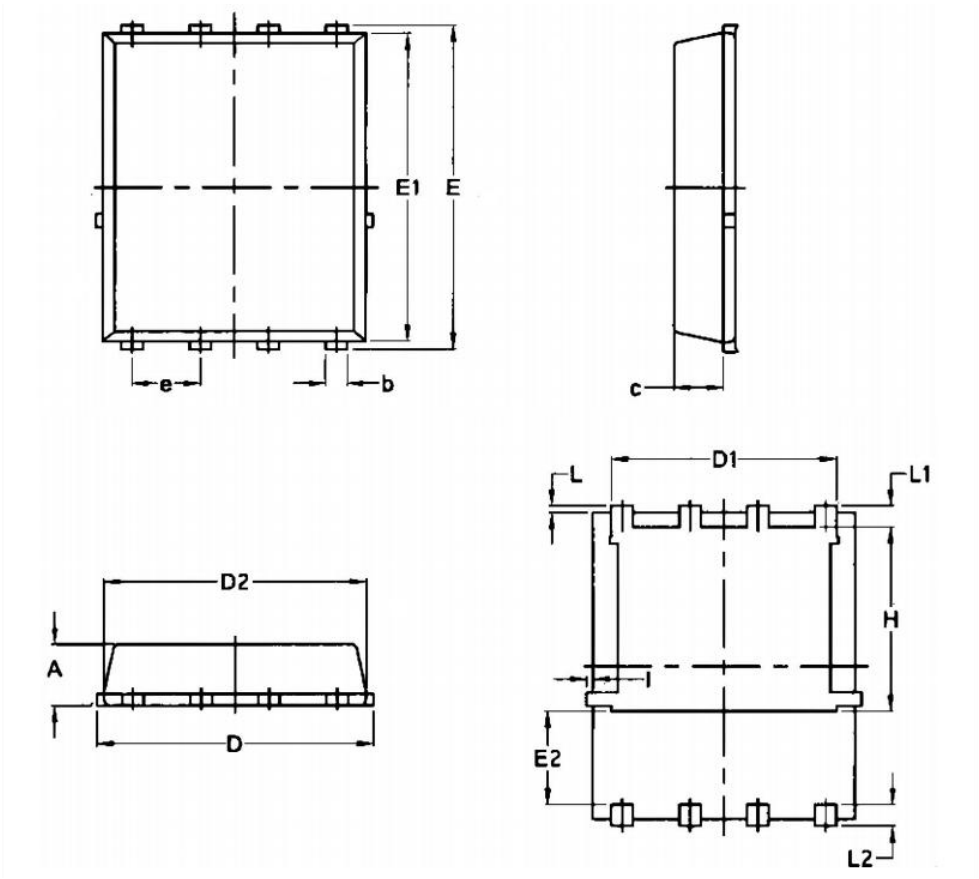


Fig.6 Maximum Safe Operation Area

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