

-60V P-Channel MOSFET

1. Product Summary

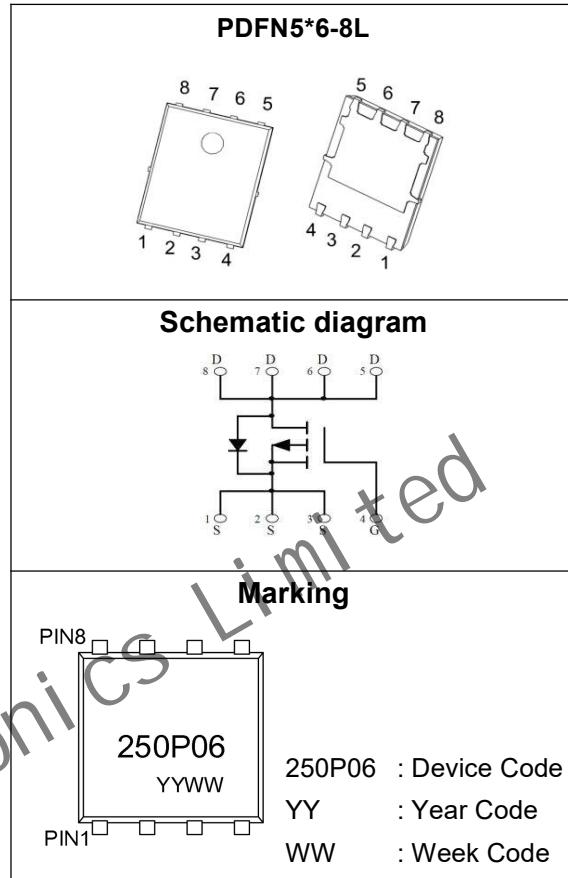
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-60V	25m Ω @-10V	-50A
	27m Ω @-4.5V	

2. Features

- V_{DS} -60V
- I_D -50A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <30 mohm
- High density cell design for ultra low $R_{DS(ON)}$
- Excellent package for good heat dissipation

3. Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible Power Supply



4. Absolute Maximum rating ($T_A = 25^\circ\text{C}$ 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	I_D	-50	A
Pulsed Drain Current ¹	I_{DM}	-200	A
Single Pulsed Avalanche Energy	E_{AS}	76.1	mJ
Power Dissipation ²	P_D	100	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.25	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^\circ\text{C}$

5. Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

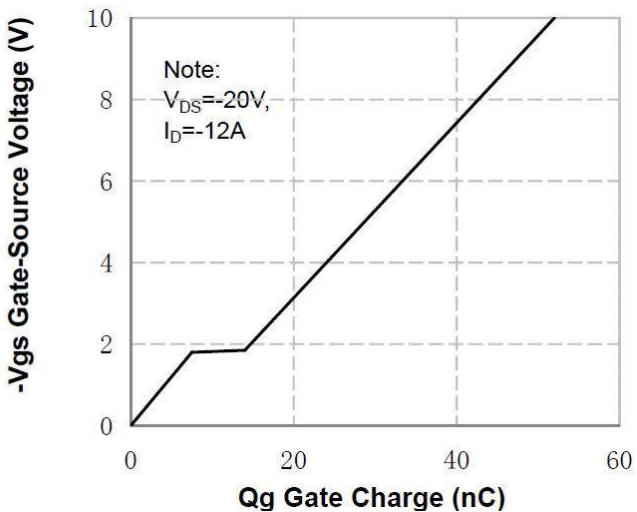
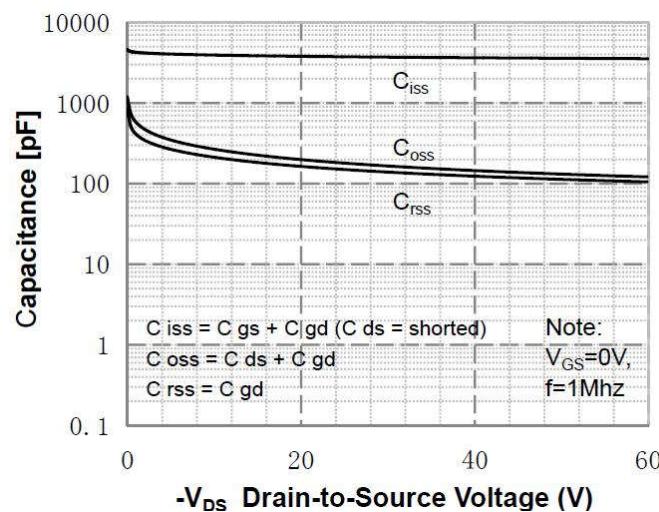
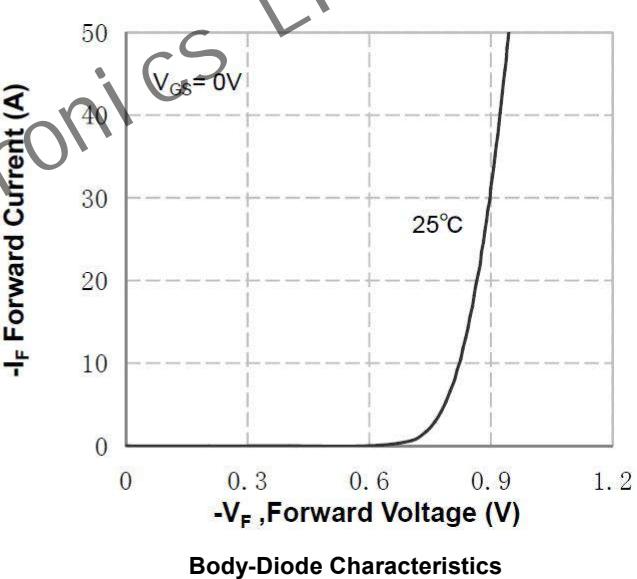
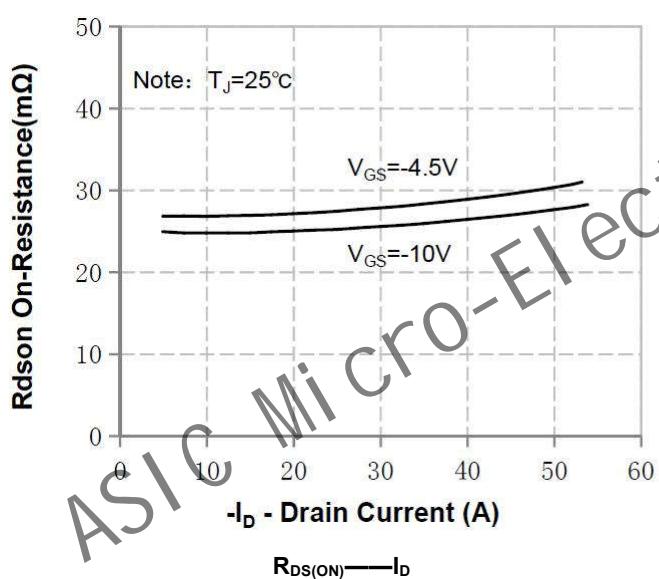
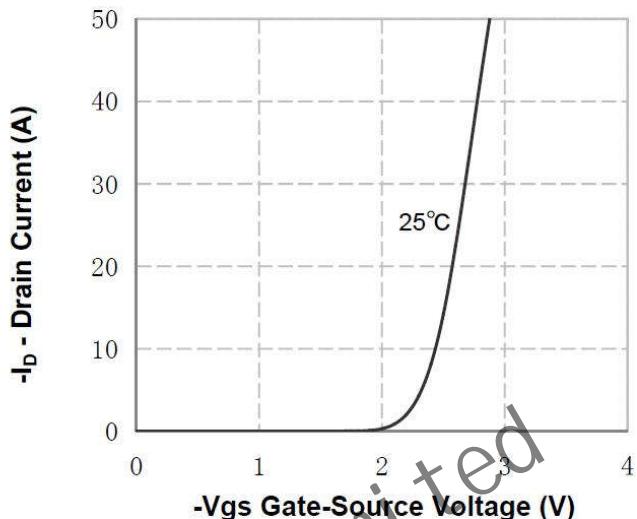
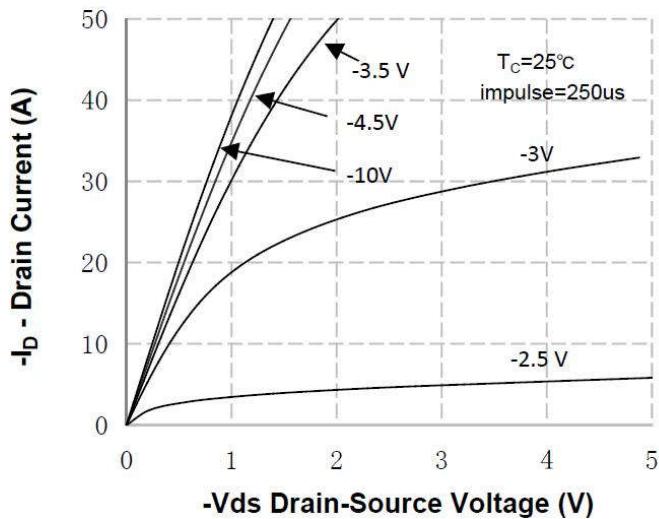
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}} = 0\text{V}$, $I_D = -250\mu\text{A}$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{\text{DS}} = -30\text{V}$, $V_{\text{GS}} = 0\text{V}$			-1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{\text{GS}} = \pm 20\text{V}$, $V_{\text{DS}} = 0\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{DS}} = V_{\text{GS}}$, $I_D = -250\mu\text{A}$	-1.2	-1.7	-2.5	V
Drain-source On-resistance	$R_{\text{DS}(\text{on})}$	$V_{\text{GS}} = -10\text{V}$, $I_D = -15\text{A}$		25	32	$\text{m}\Omega$
		$V_{\text{GS}} = -4.5\text{V}$, $I_D = -20\text{A}$		27	40	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{\text{DS}} = -20\text{V}$, $V_{\text{GS}} = 0\text{V}$, $f = 1\text{MHz}$		3780		pF
Output Capacitance	C_{oss}			195		
Reverse Transfer Capacitance	C_{rss}			160		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{\text{DS}} = -20\text{V}$, $I_D = -12\text{A}$, $V_{\text{GS}} = -10\text{V}$		52		nC
Gate-source Charge	Q_{gs}			7.4		
Gate-drain Charge	Q_{gd}			6.5		
Turn-on Delay Time	$t_{\text{d}(\text{on})}$	$V_{\text{GS}} = -10\text{V}$, $V_{\text{DS}} = -15\text{V}$, $R_G = 3.3\Omega$, $I_D = -1\text{A}$		39		ns
Turn-on Rise Time	t_r			24		
Turn-off Delay Time	$t_{\text{d}(\text{off})}$			102		
Turn-off Fall Time	t_f			7		
Source - Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{\text{GS}} = 0\text{V}$, $I_S = -20\text{A}$			-1.2	V

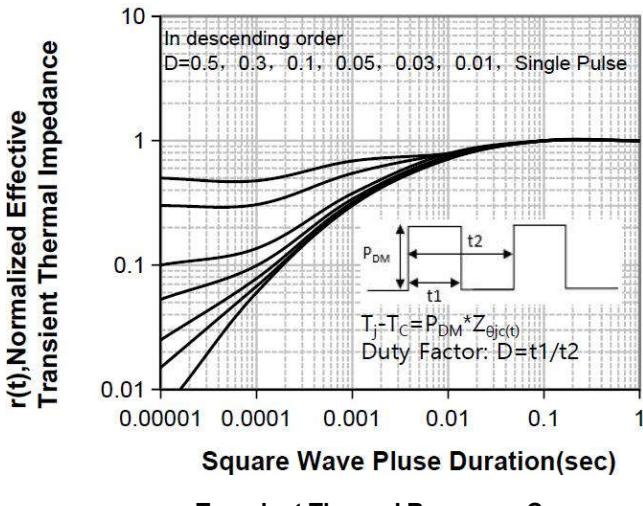
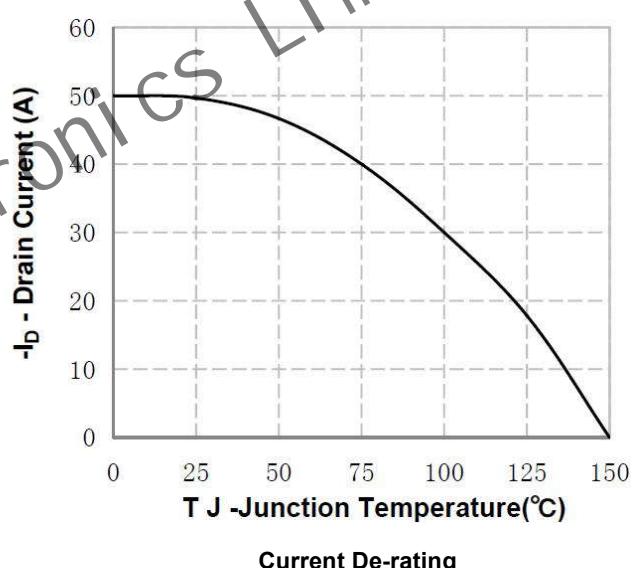
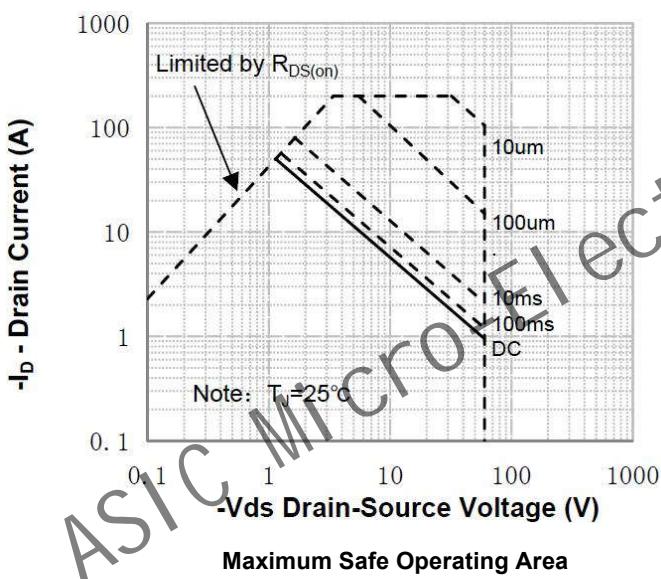
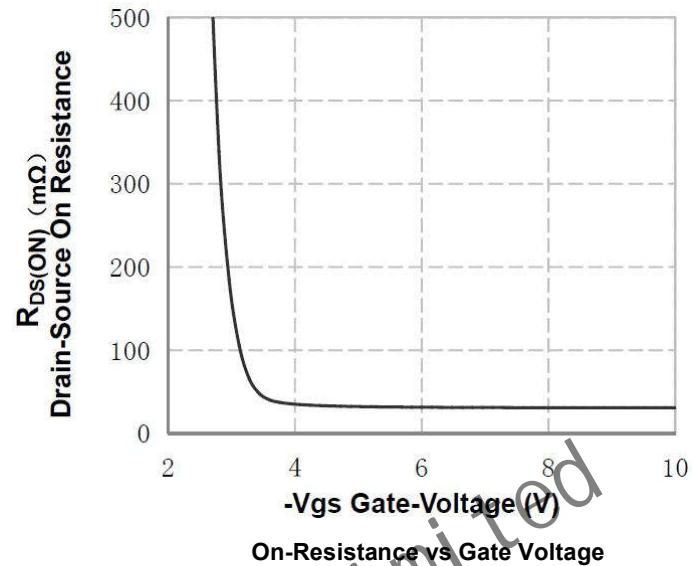
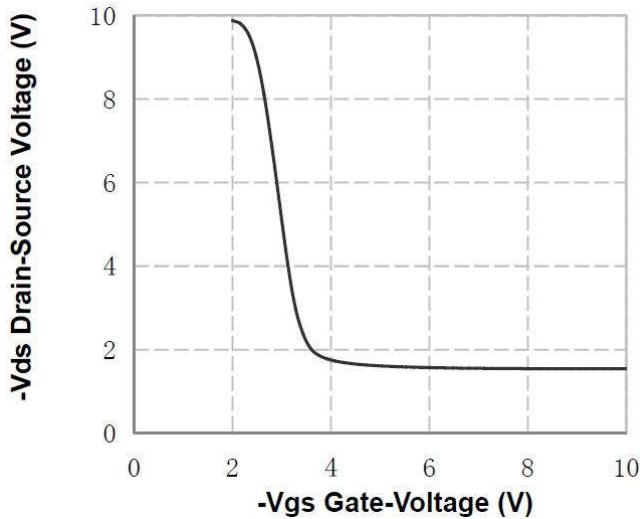
Notes:

1. The maximum current rating is limited by package. And device mounted on a large heat sink
2. The power dissipation PD is limited by $T_{\text{J}(\text{MAX})} = 150^\circ\text{C}$. And device mounted on a large heat sink

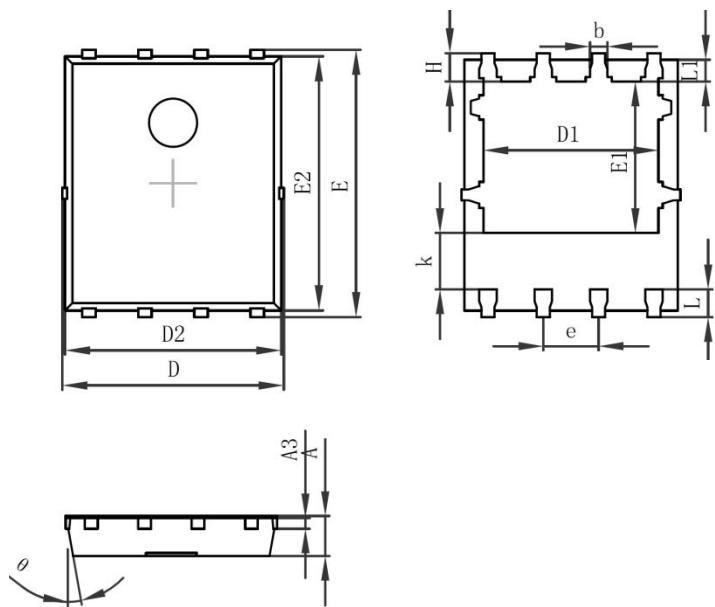
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6.Typical Characteristic



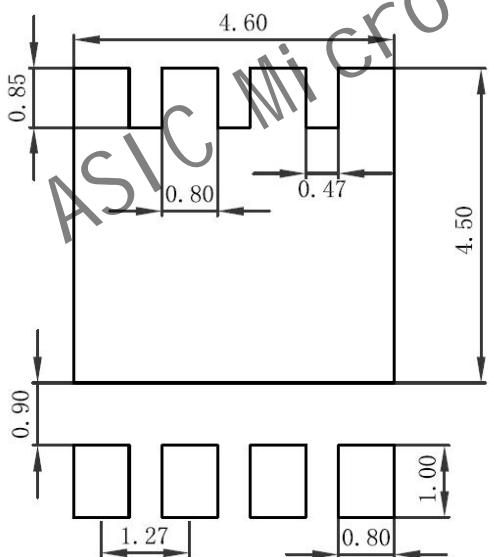


7. Dimension



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

8. Recommended Land Pattern

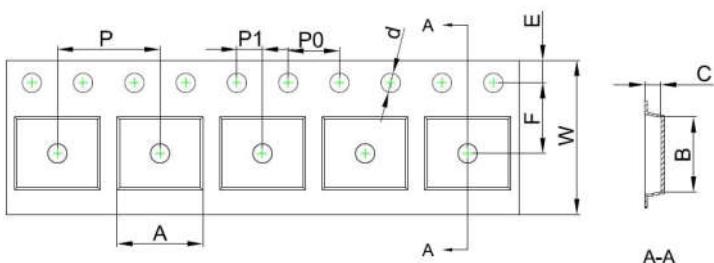


Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference only
4. Unit: mm

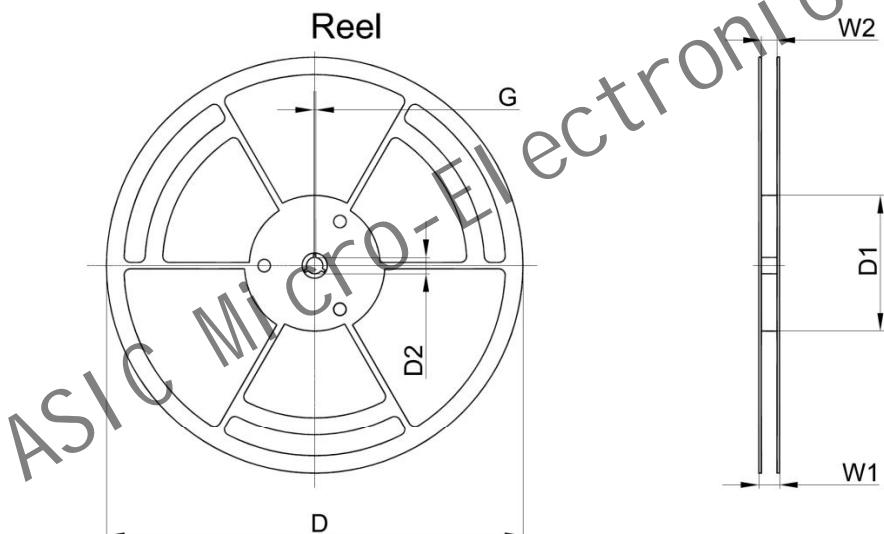
9.Tape and Reel

PDFN5*6-8L Embossed Carrier Tape



Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
PDFNWB5×6-8L	6.30	5.30	1.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFN5*6-8L Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	G	W1	W2
13" Dia	Ø330.00	100.00	13.00	1.90	17.60	12.40

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
5,000 pcs	13 inch	5,000 pcs	340×336×29	50,000 pcs	353×346×365

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