

1. Product Summary

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

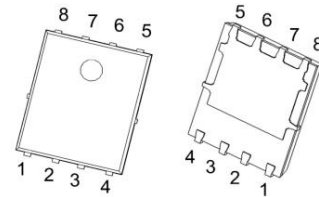
2. Features

- 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

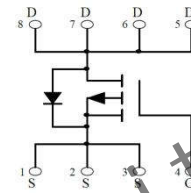
3. Applications

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

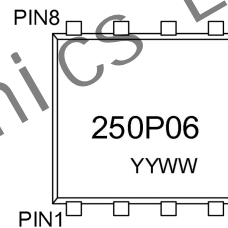
PDFN5*6-8L



Schematic diagram



Marking



250P06 : Device Code
YY : Year Code
WW : Week Code

4. Absolute Maximum rating ($T_A = 25^\circ C$ 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
$T_C = 25^\circ C$			
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.25	$^\circ C/W$
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{STG}	-55~ +150	$^\circ C$

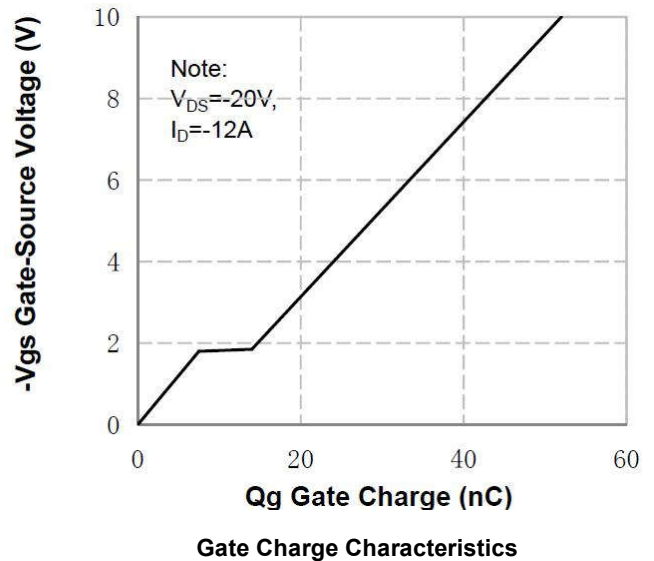
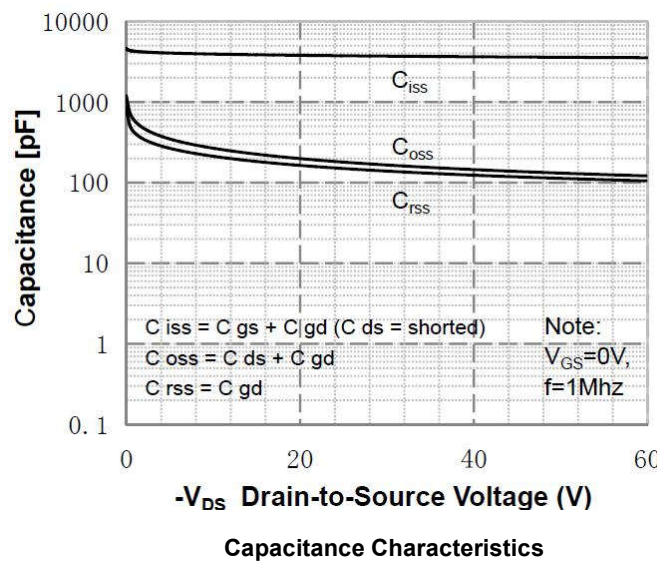
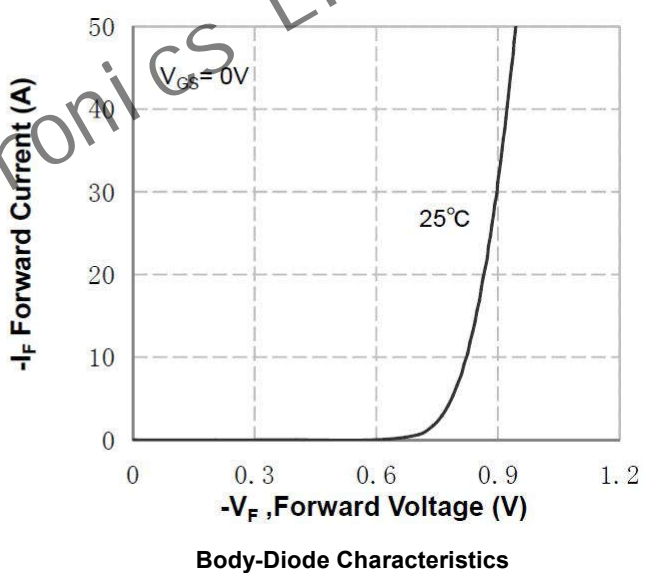
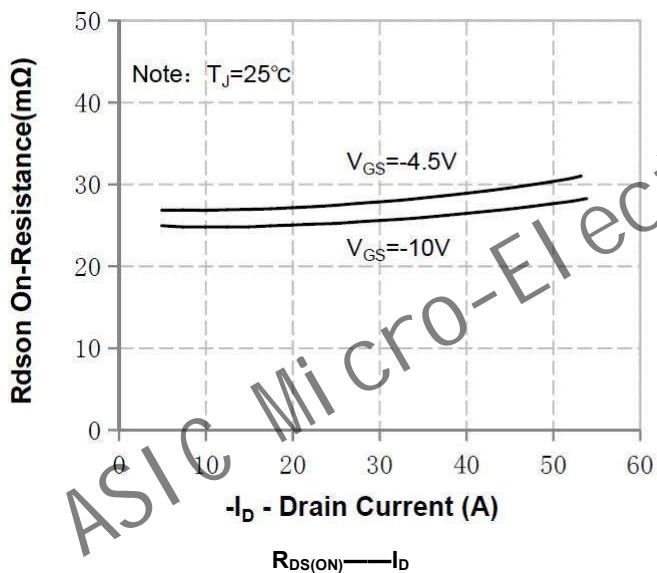
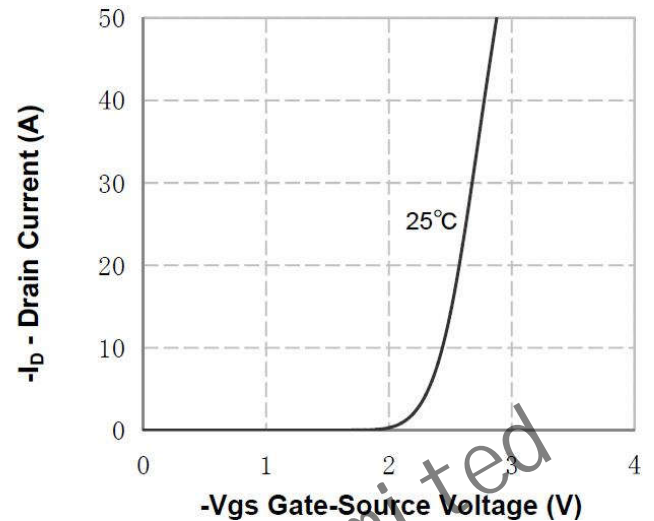
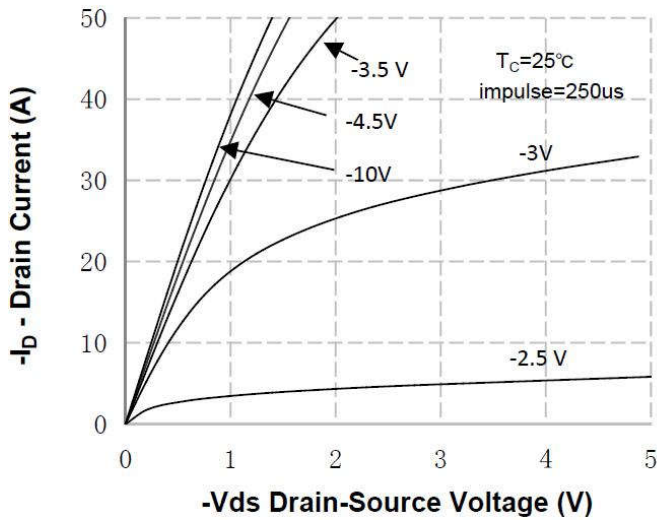
5. Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

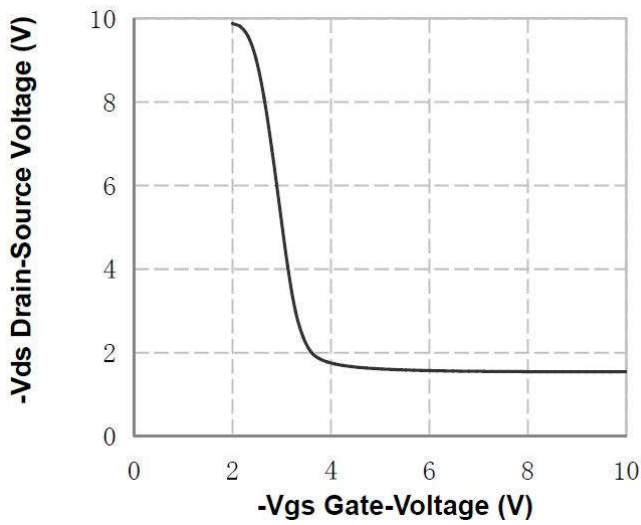
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$			-1	μA
Gate - Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS}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

Notes:

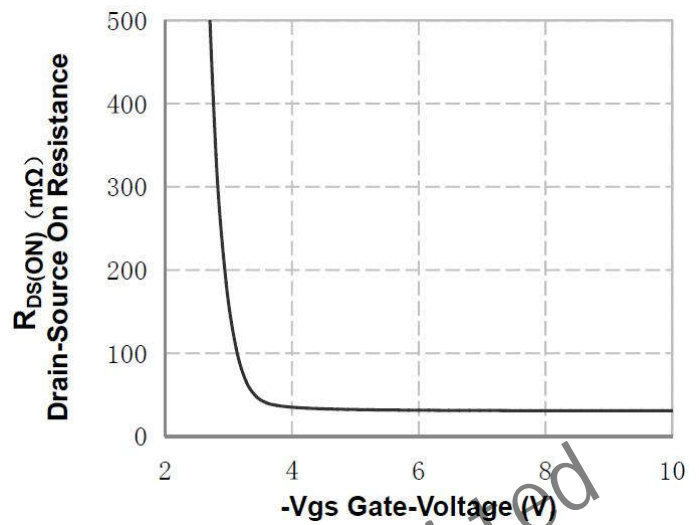
1. The maximum current rating is limited by package. And device mounted on a large heat sink
2. The power dissipation PD is limited by $T_J(\text{MAX}) = 150^\circ\text{C}$. And device mounted on a large heat sink

6. Typical Characteristic

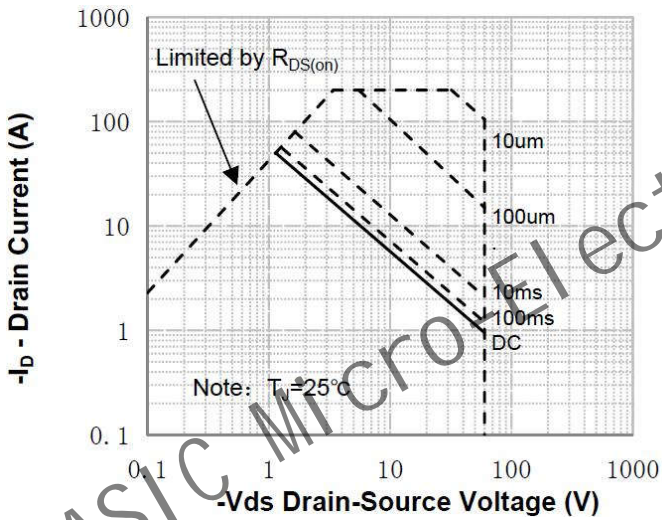




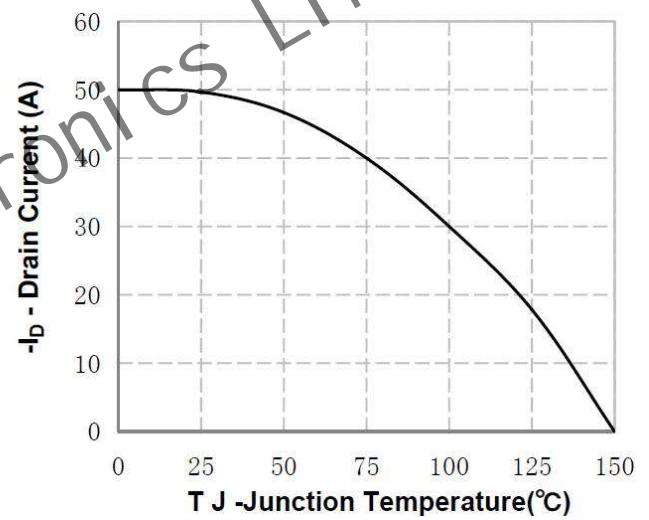
Vds Drain-Source Voltage vs Gate Voltage



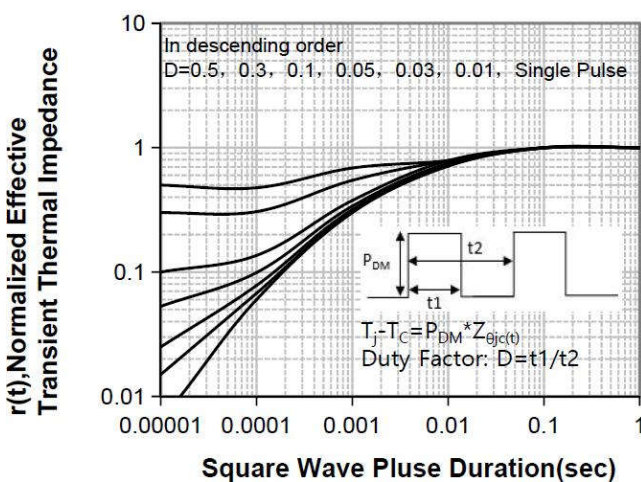
On-Resistance vs Gate Voltage



Maximum Safe Operating Area

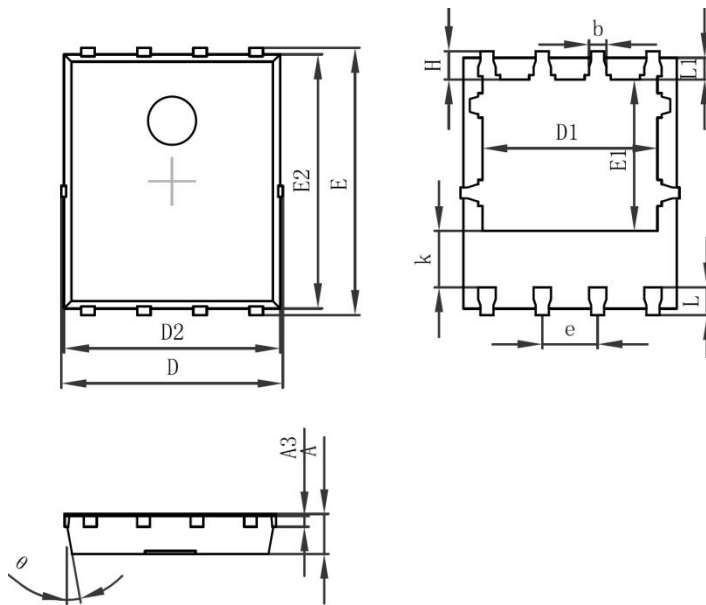


Current De-rating



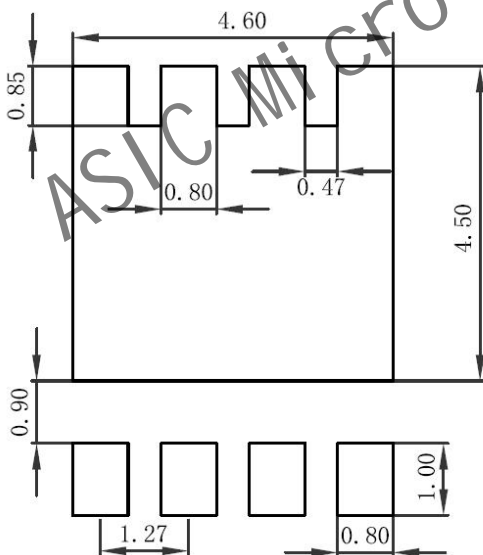
Transient Thermal Response Curve

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

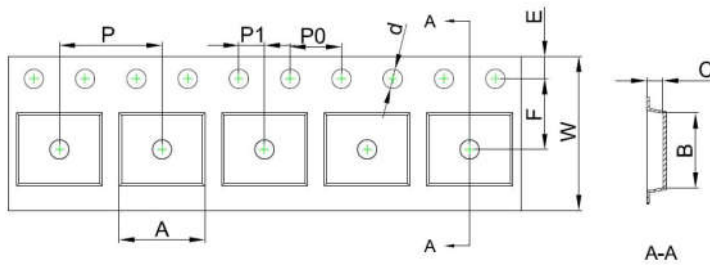


Note:

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

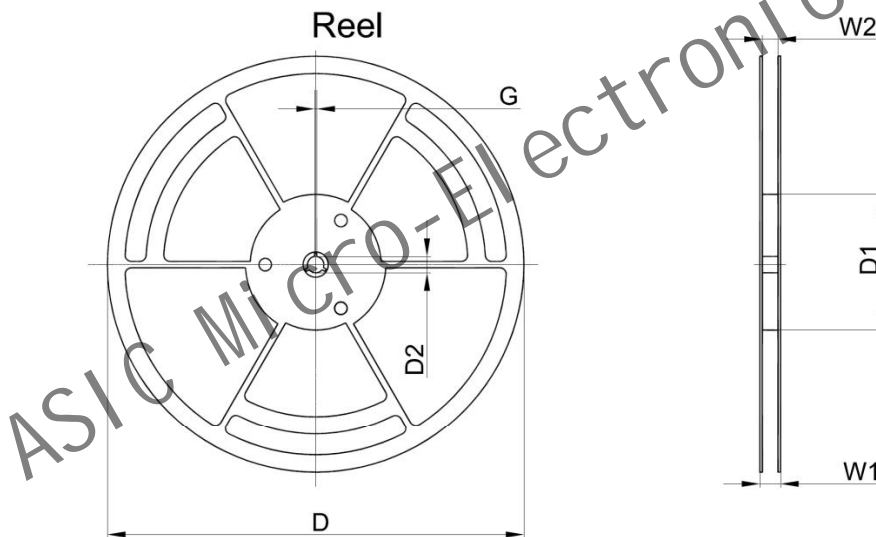
9. Tape and Reel

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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