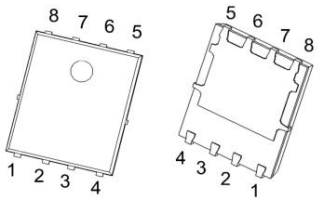
-60V P-Channel MOSFET

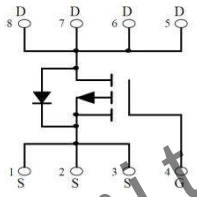
1.Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-60V	16mΩ@-10V	-80A
	19mΩ@-4.5V	

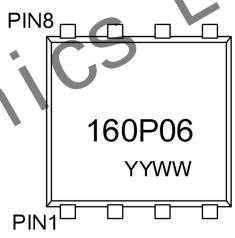
PDFN5*6-8L



Schematic diagram



Marking



160P06 : Device Code
YY : Year Code
WW : Week Code

2.Features

- V_{DS} -60V
- I_D -80A
- $R_{DS(ON)}$(at V_{GS}=-10V) ＜20 mohm
- $R_{DS(ON)}$(at V_{GS}=-4.5V) ＜24 mohm
- Very Low On-resistance $R_{DS(ON)}$
- LowCrss
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability

3.Applications

- PWM Application
- Load Switch
- Power Management

4.Absolute Maximum rating（T_A = 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	I_D	-80	A
Pulsed Drain Current [1]	I_{DM}	-320	A
Single Pulsed Avalanche Energy [2]	E_{AS}	756	mJ
Power Dissipation	P_D	48	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	2.6	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

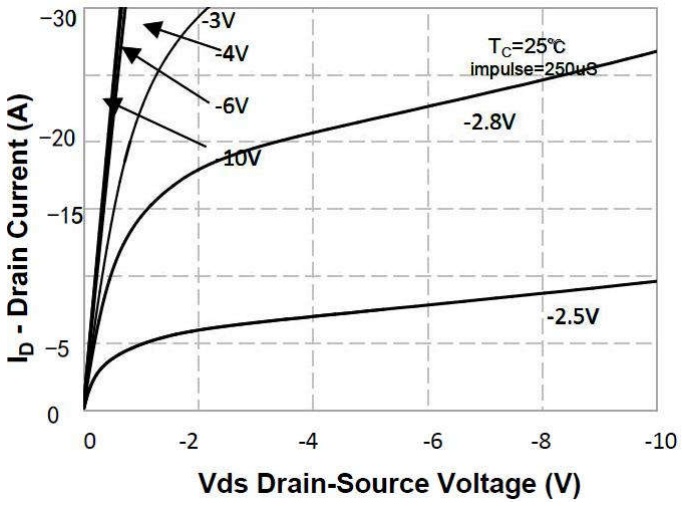
5.Electrical Characteristics（T_A = 25℃ unless otherwise noted）

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -60V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.0	-1.6	-2.5	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} =-10 V, I_D = -20A		16	20	mΩ
		V_{GS} =-4.5 V, I_D = -20A		19	24	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = -20V,V_{GS} = 0V, f = 1MHz		4400		pF
Output Capacitance	C_{oss}			259		
Reverse Transfer Capacitance	C_{rss}			212		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = -30V,V_{GS} = -10V, I_D = -20A		115		nC
Gate-source Charge	Q_{gs}			27.4		
Gate-drain Charge	Q_{gd}			50		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -20V , V_{GS} = -10V , R_G = 1Ω, I_D= -20A		24		ns
Turn-on Rise Time	t_r			18		
Turn-off Delay Time	$t_{d(off)}$			56		
Turn-off Fall Time	t_f			30		
Source - Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = -20A			-1.2	V

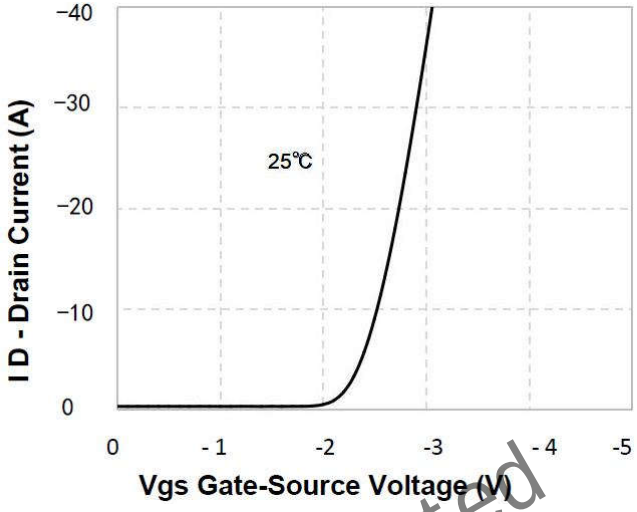
Notes :

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. E_{AS} condition: T_J =25℃, V_{DD} =-25V, V_G =-5V, R_G =25Ω, L=0.5mH

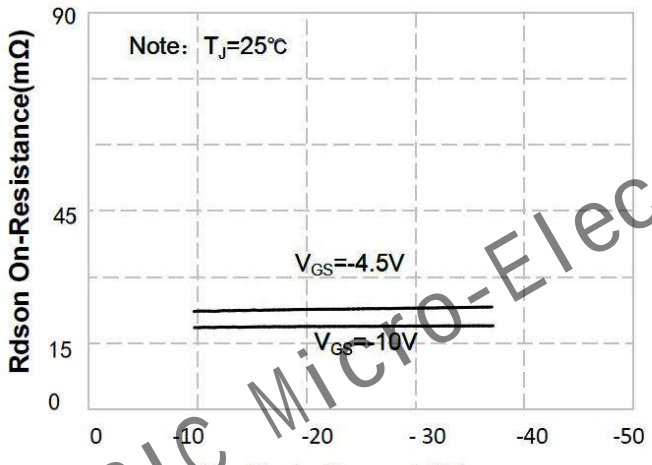
6.Typical Characteristic



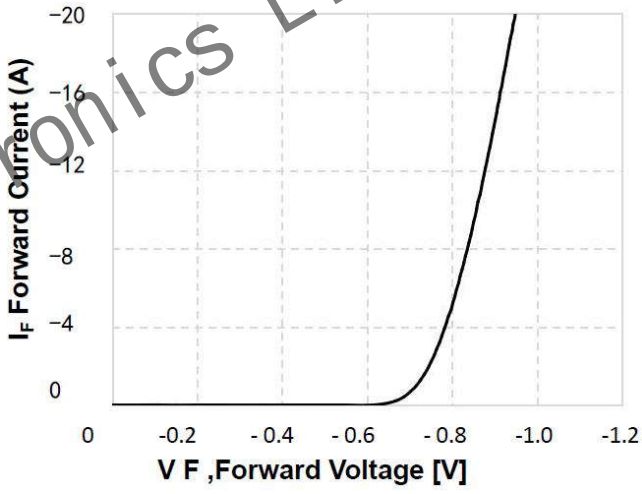
Output Characteristics



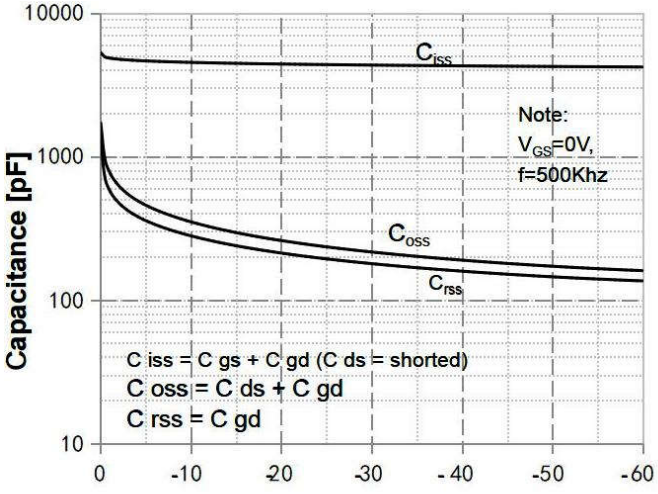
Transfer Characteristics



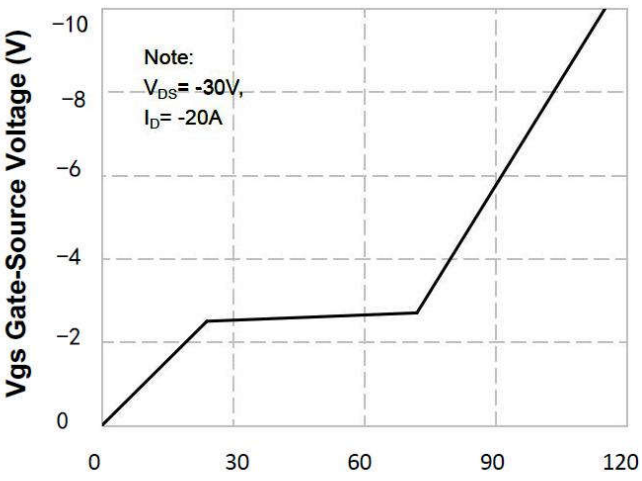
$R_{DS(ON)}$ vs I_D



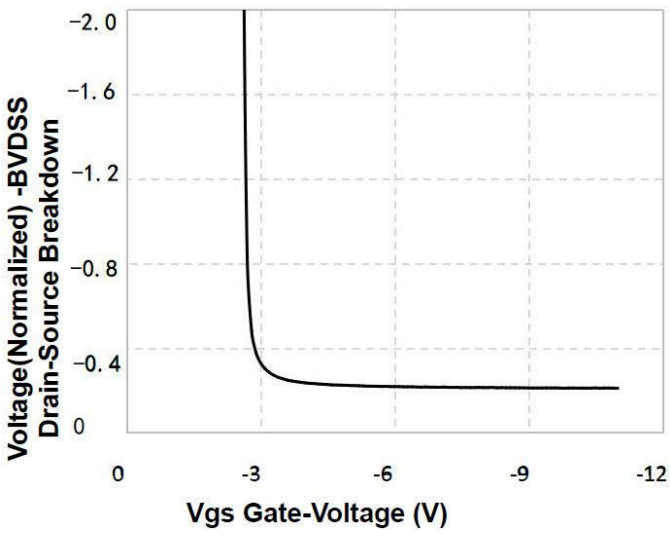
Body Diode Characteristics



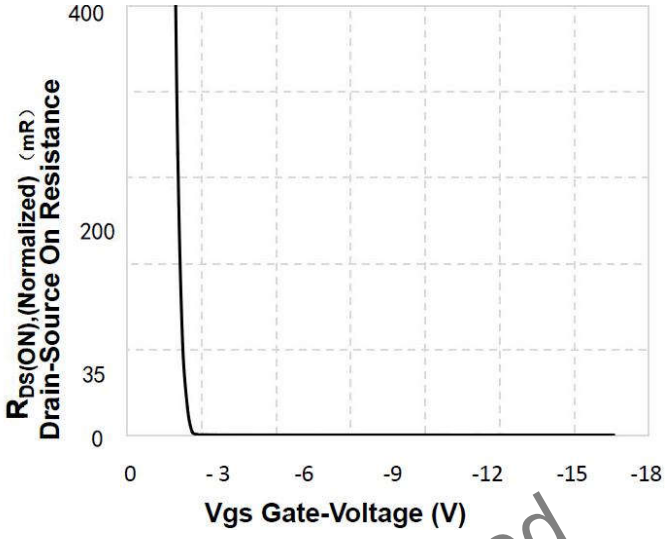
Capacitance Characteristics



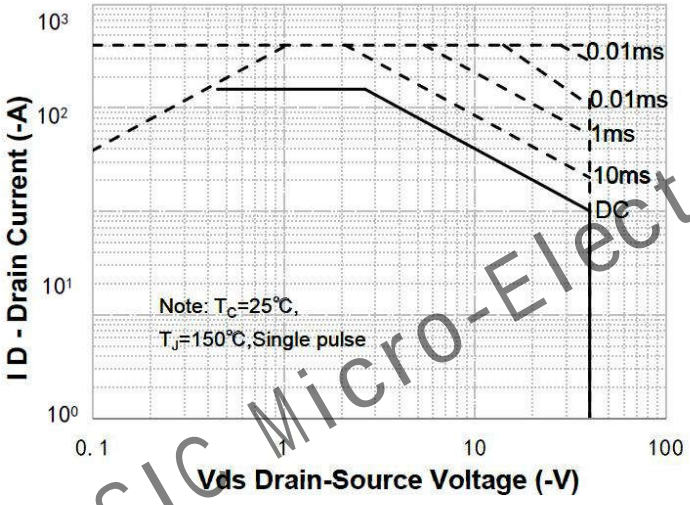
Gate Charge Characteristics



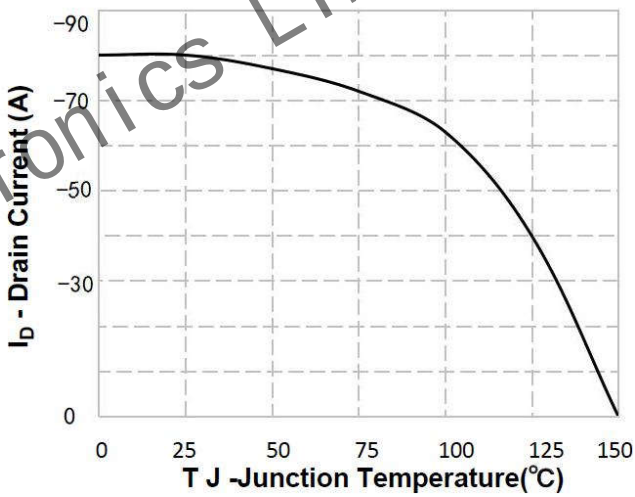
Breakdown Voltage Variation vs Gate-Voltage



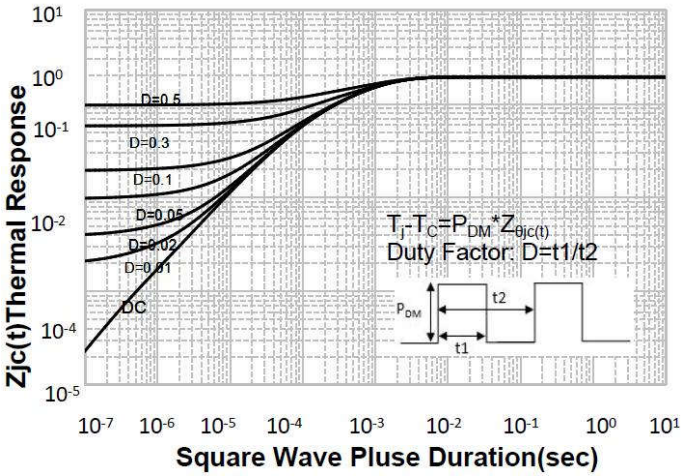
On-Resistance Variation vs Gate Voltage



Maximum Safe Operating Area

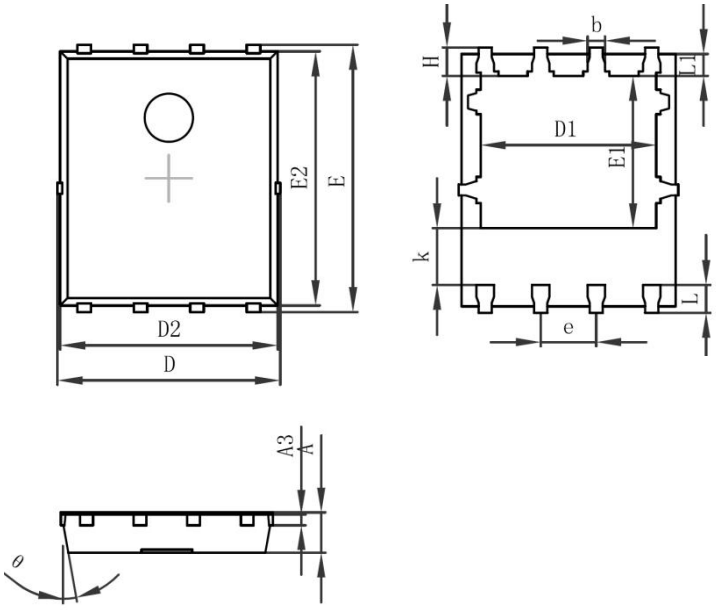


Maximum Continuous Drain Current vs. Case Temperature



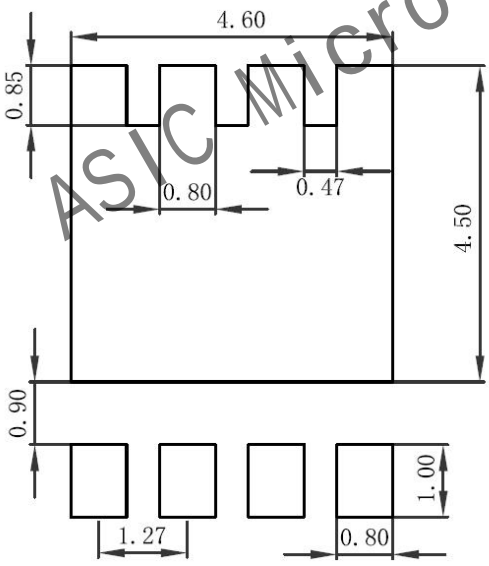
Maximum Effective Transient Thermal Impedance, Junction-to-Case

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

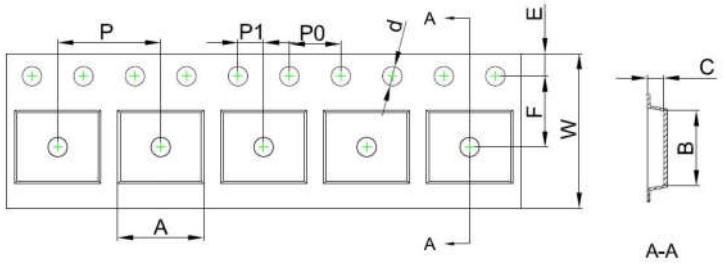


Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only
4. Unit: mm

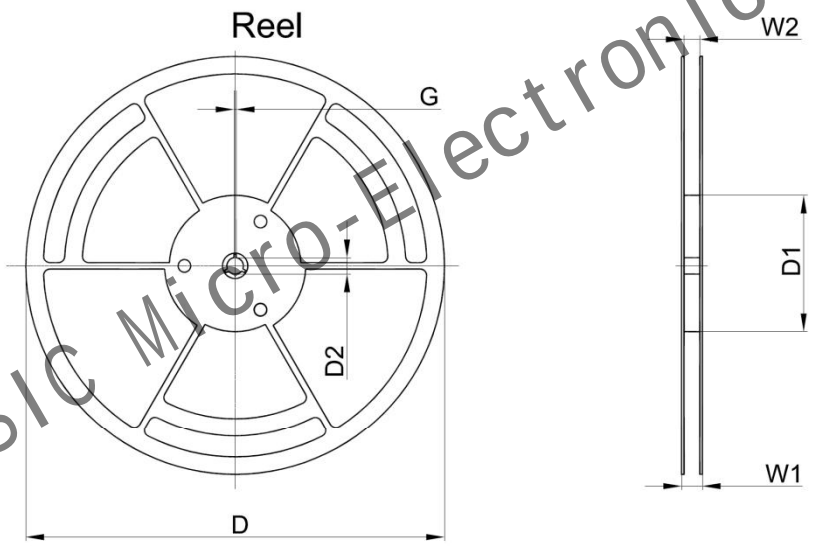
9.Tape and Reel

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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