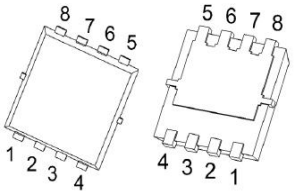
30V N-Channel MOSFET

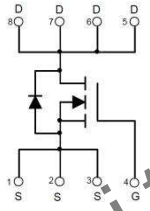
1.Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	3.5mΩ@10V	60A
	5.5mΩ@4.5V	

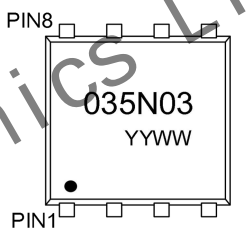
PDFNWB3.3x3.3-8L



Schematic diagram



Marking



035N03 : Device Code
YY : Year Code
WW : Week Code

2.Features

- V_{DS} 30V
- I_D 60A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜5.5 mohm
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜9.0 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℃ unless otherwise noted）

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	30	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current		I_D	60	A
Pulsed Drain Current		I_{DM}	240	A
Single Pulsed Avalanche Energy [1]		E_{AS}	90	mJ
Power Dissipation		P_D	83.3	W
Thermal Resistance from Junction to Case	Steady-State	$R_{\theta JC}$	1.5	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

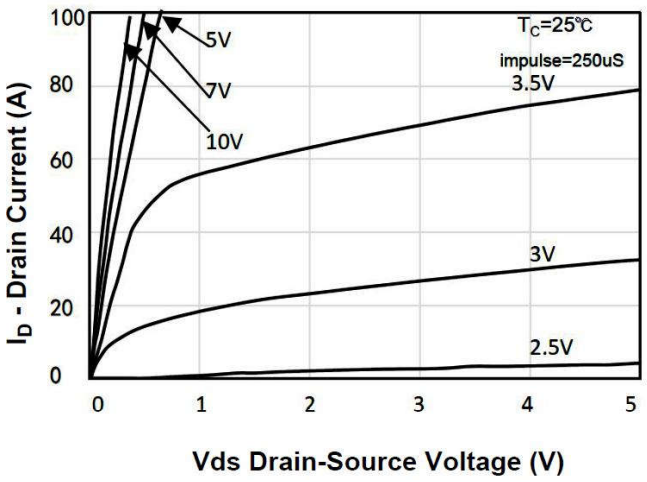
5.Electrical Characteristics（T_A = 25℃ unless otherwise noted）

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	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} = ±20V, V_{DS} = 0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.5	2.5	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =30A		3.5	5.5	mΩ
		V_{GS} =4.5V, I_D =20A		5.5	9	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1.0 MHz		1950		pF
Output Capacitance	C_{oss}			320		
Reverse Transfer Capacitance	C_{rss}			240		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 15 V, I_D =30A, V_{GS} = 10V		42		nC
Gate-source Charge	Q_{gs}			4		
Gate-drain Charge	Q_{gd}			14		
Turn-on Delay Time	$t_{d(on)}$	V_{GS}= 10 V, V_{DS}=15 V, R_G = 3 Ω ,I_D=30A		13		ns
Turn-on Rise Time	t_r			36		
Turn-off Delay Time	$t_{d(off)}$			43		
Turn-off Fall Time	t_f			16		
Source - Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}= 0V, I_S= 30A			1.2	V

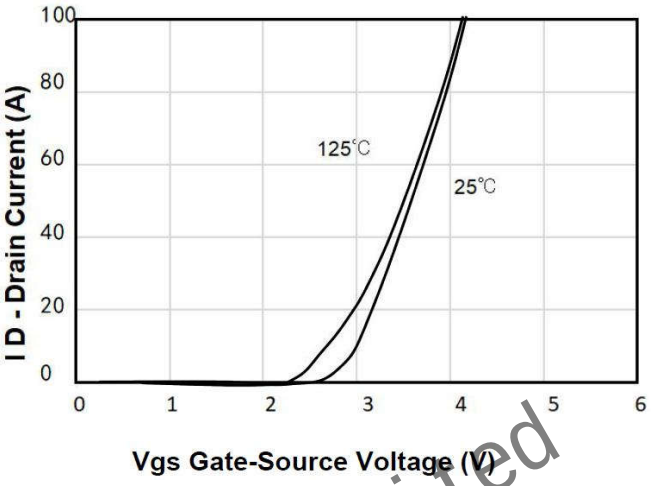
Notes :

1. EAS condition: T_J =25℃, V_{DD} =15V, V_G =10V, R_G =25Ω, L=0.5mH, I_{AS} =19A

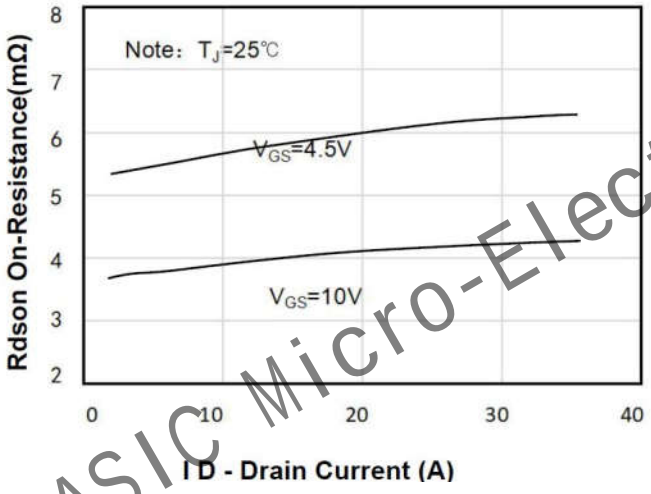
6.Typical Characteristic



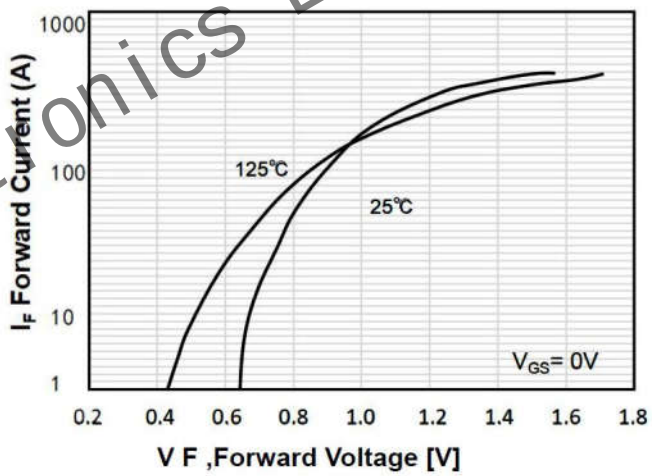
On-Region Characteristics



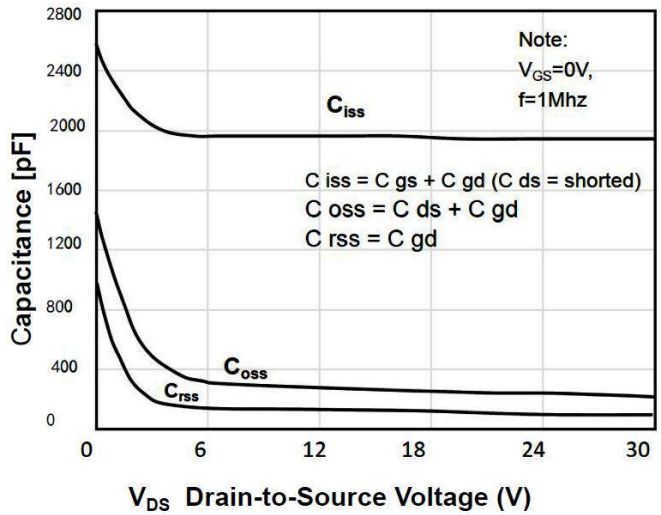
Transfer Characteristics



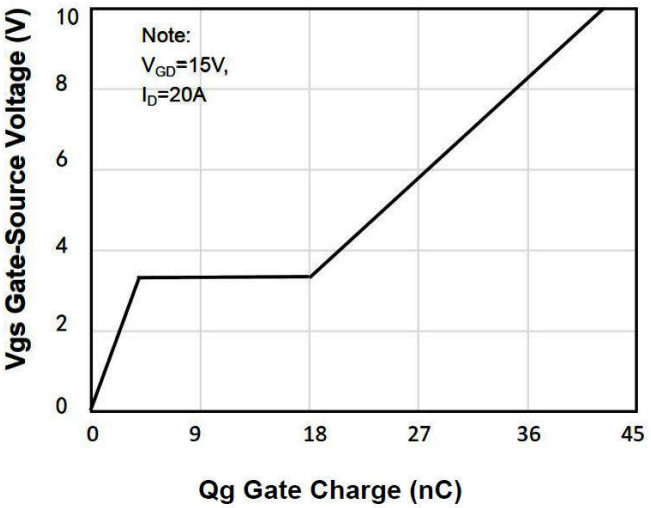
Rdson- Drain Current



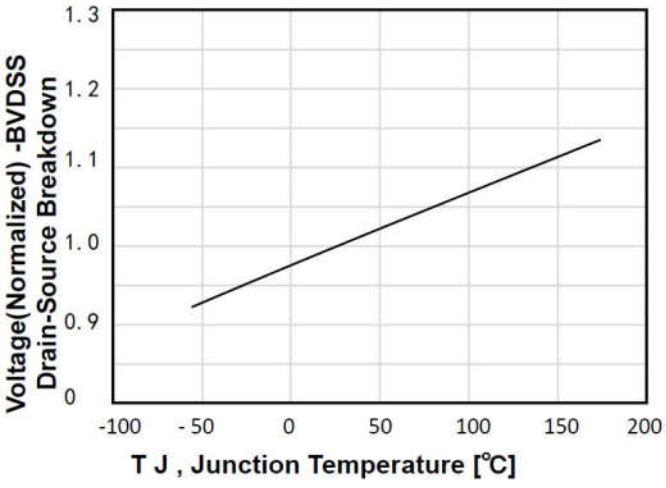
Source- Drain Diode Forward



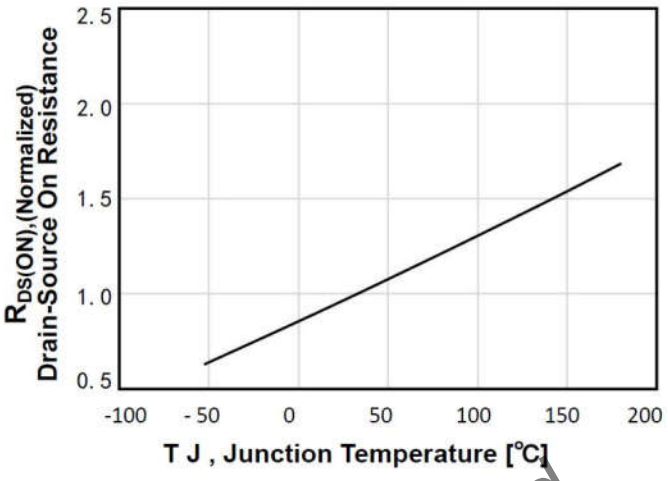
Capacitance Characteristics



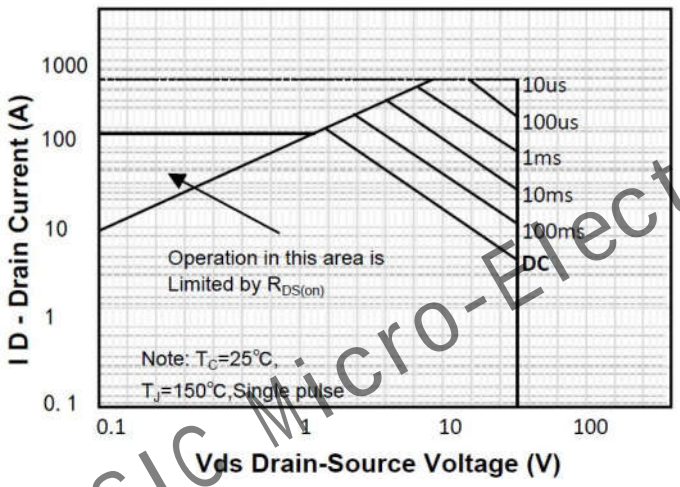
Gate Charge Characteristics



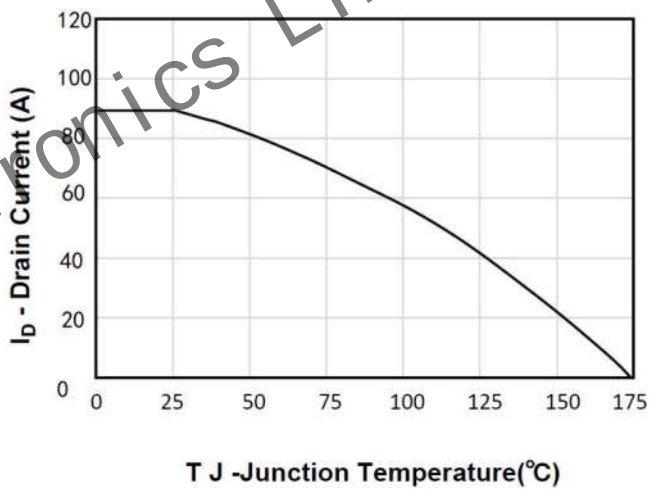
Breakdown Voltage Variation vs Temperature



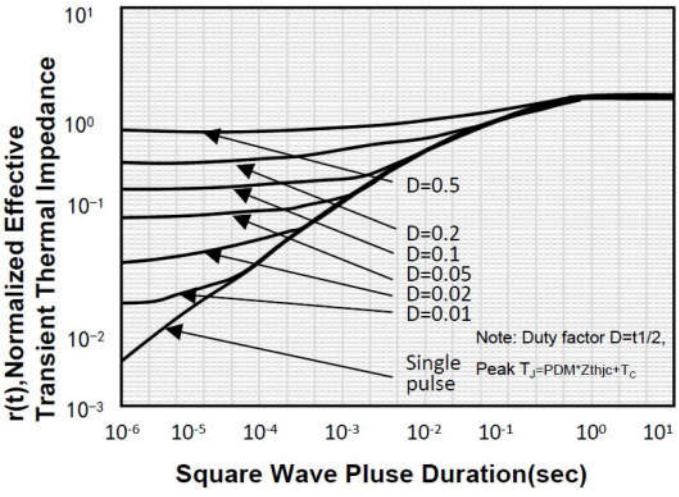
On-Resistance Variation vs Temperature



Maximum Safe Operating Area

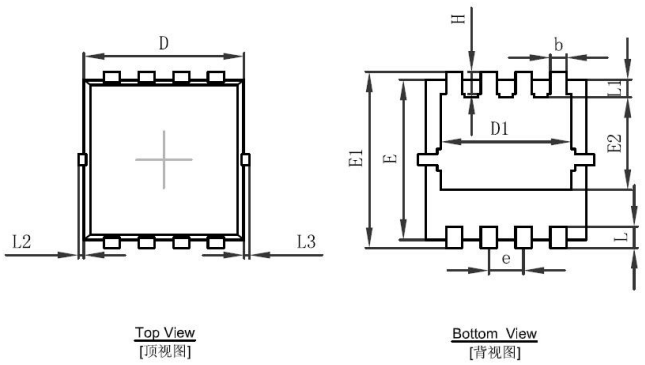


Current De-rating



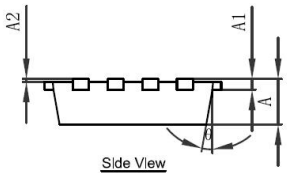
Transient Thermal Response Curve

7.Dimension



Top View
[顶视图]

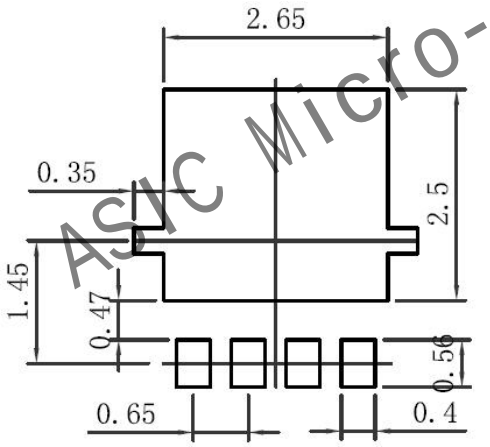
Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions		Dimensions	
	Min	Max	Min	Max
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°

8.Recommended Land Pattern

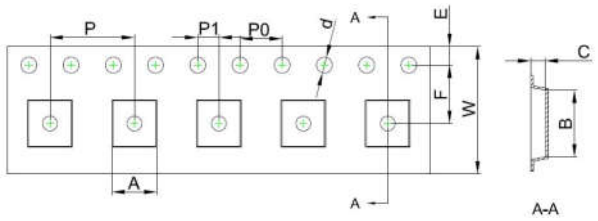


Note:

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

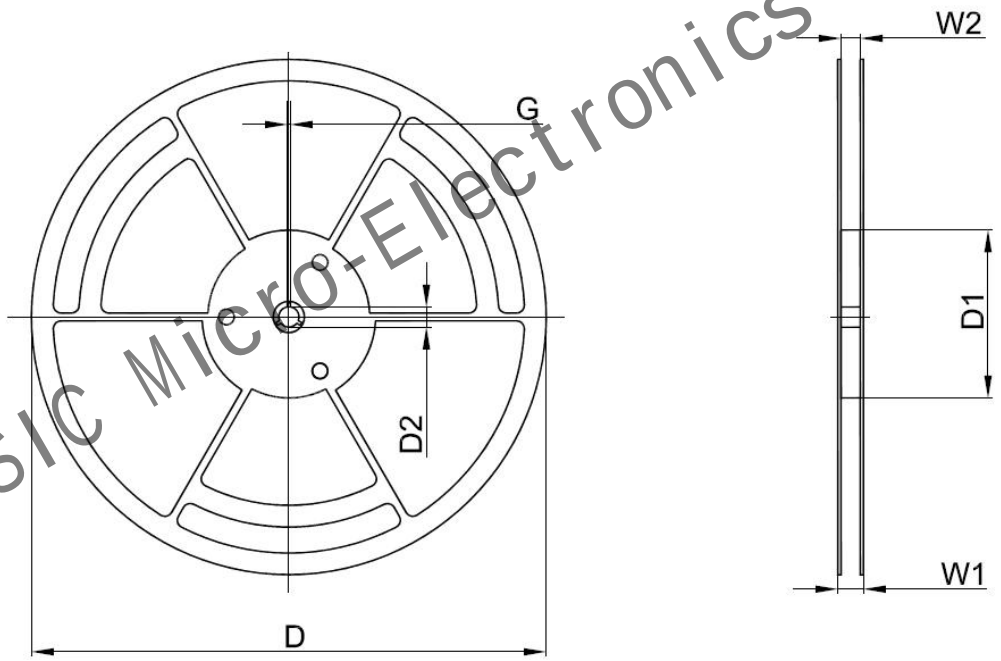
PDFNWB3.3x3.3-8L Embossed Carrier Tape



Packaging Description:
PDFNWB3.3x3.3-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 5,000 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated)

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
PDFNWB3.3x3.3-8L	3.55	3.55	1.10	Φ1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFNWB3.3x3.3-8L Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	G	W1	W2
13``Dia	Φ330.00	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	340x336x29	50,000 pcs	353x346x365

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