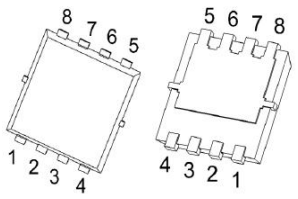
30V N-Channel Trench Power MOSFET

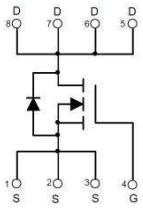
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	3.0mΩ@10V	75A
	5.0mΩ@4.5V	

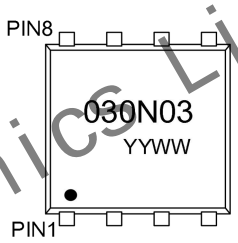
PDFNWB3.3x3.3-8L



Schematic diagram



Marking



030N03 : Device Code
YY : Year Code
WW : Week Code

Features

- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handing capability
- Lead free product is acquired

Applications

- PWM Application
- Load Switch
- Power Management

Absolute Maximum rating（T_A = 25℃ unless otherwise noted）

Parameter		Symbol	Value	Units
Drain - Source Voltage		V_{DS}	30	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current		I_D	75	A
Pulsed Drain Current [1]		I_{DM}	300	A
Single Pulsed Avalanche Energy [2]		E_{AS}	289	mJ
Power Dissipation	T_C = 25℃	P_D	83.3	W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	1.5	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

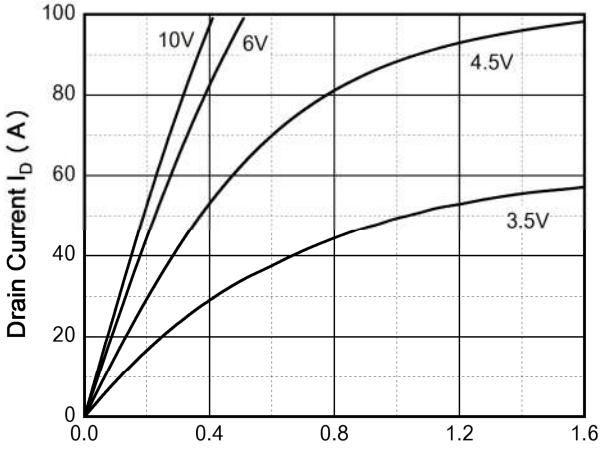
Electrical Characteristics（T_A = 25℃ unless otherwise noted）

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off 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	1.6	2.5	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS}= 10V, I_D= 30A		3.0	4.0	mΩ
		V_{GS}= 4.5V, I_D= 20A		5.0	6.0	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}= 15V, V_{GS}= 0V, f = 1.0MHz		3270		pF
Output Capacitance	C_{oss}			358		
Reverse Transfer Capacitance	C_{rss}			315		
Switching Characteristics [2]						
Total Gate Charge	Q_g	V_{DS} = 10V, I_D= 30A,V_{GS}= 10V		62		nC
Gate-source Charge	Q_{gs}			30		
Gate-drain Charge	Q_{gd}			3.2		
Turn-on Delay Time	$t_{d(on)}$	V_{DS}= 10V,I_D= 30A, R_{GEN}= 3Ω, V_{GS}= 10V		12		ns
Turn-on Rise Time	t_r			110		
Turn-off Delay Time	$t_{d(off)}$			56		
Turn-off Fall Time	t_f			100		
Source - Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 20A			1.2	V

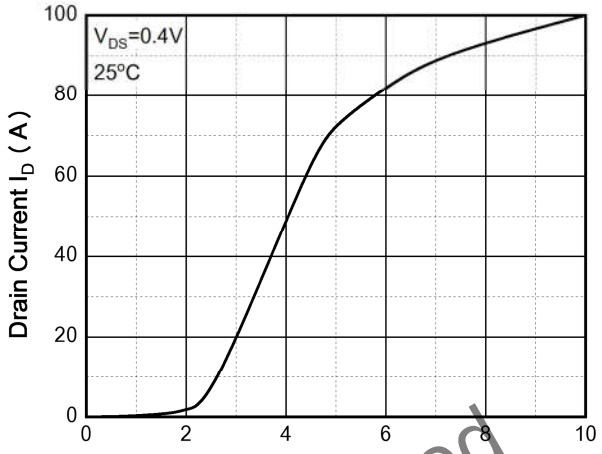
Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. E_{AS} condition: T_J=25℃, V_{DD}=15V, V_G=10V, R_G=25Ω, L=0.5mH

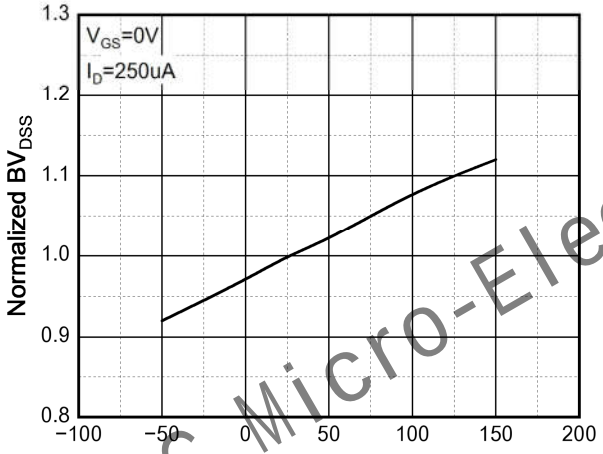
Typical Characteristic



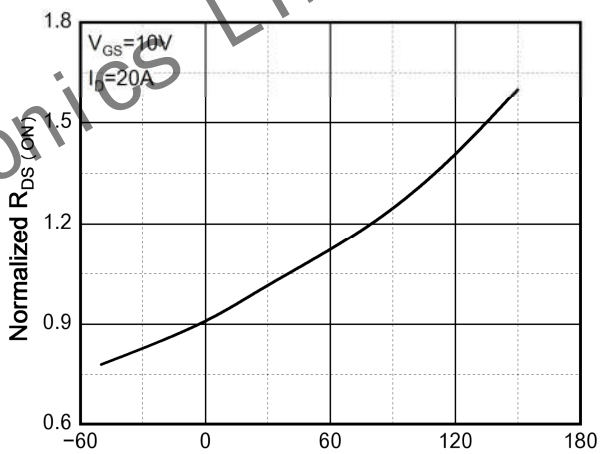
Output Characteristics



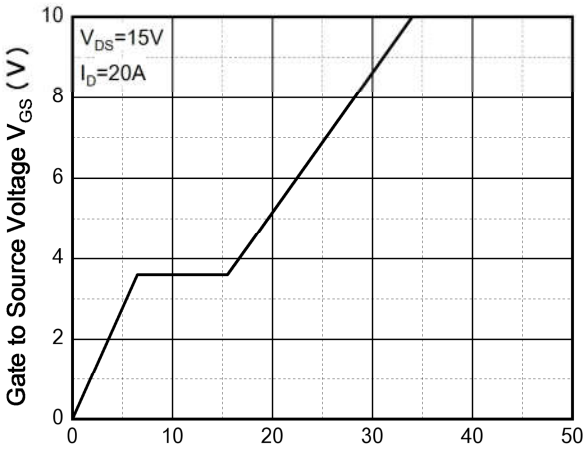
Transfer Characteristics



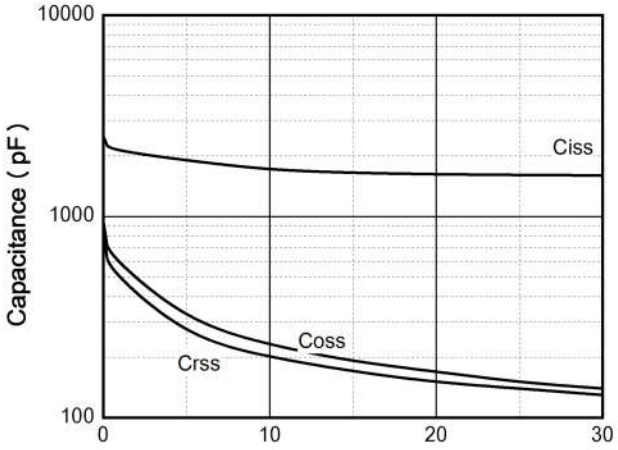
BV_{DSS} vs Junction Temperature



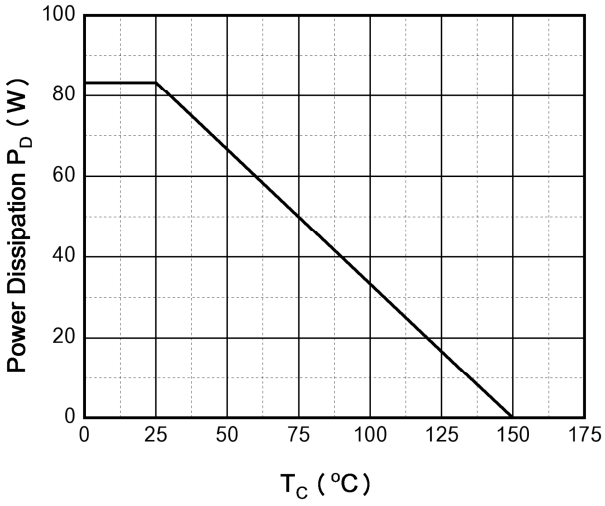
$R_{DS(ON)}$ vs Junction Temperature



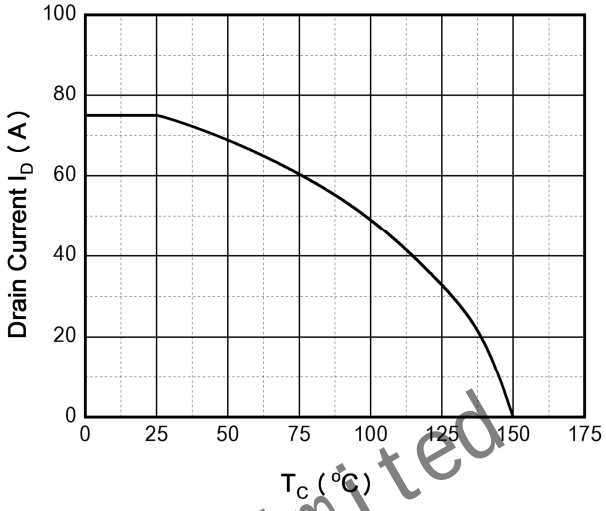
Gate Charge Characteristics



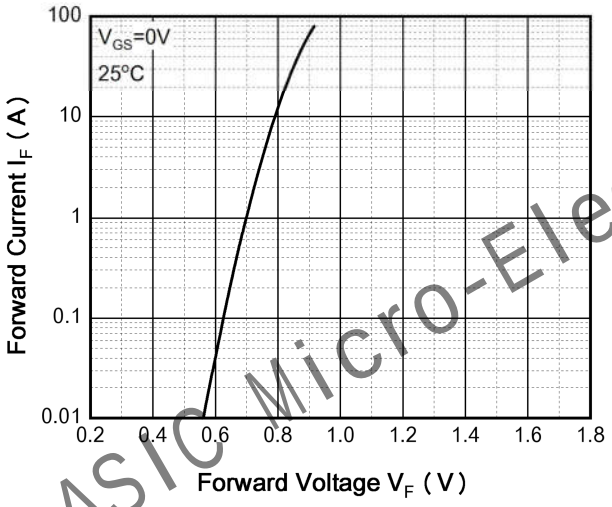
Capacitance Characteristics



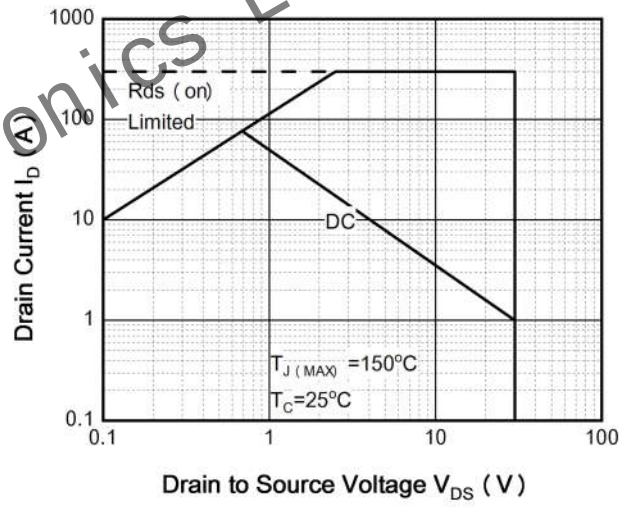
Power Dissipation



Drain Current



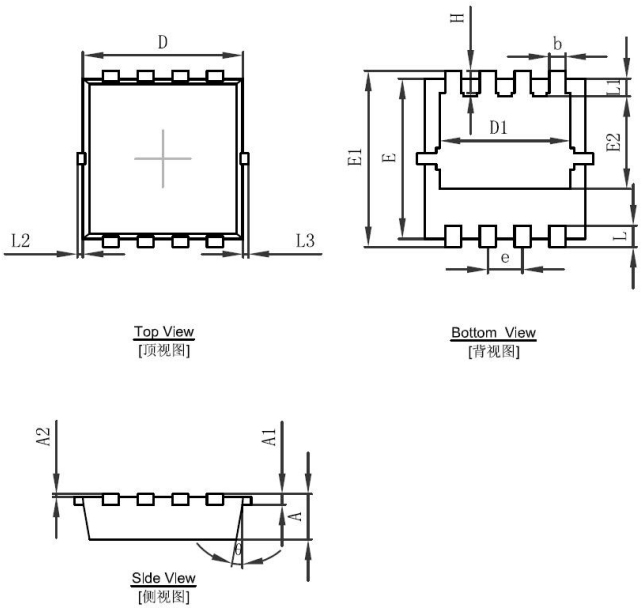
Body-Diode Characteristics



Maximum Safe Operating Area

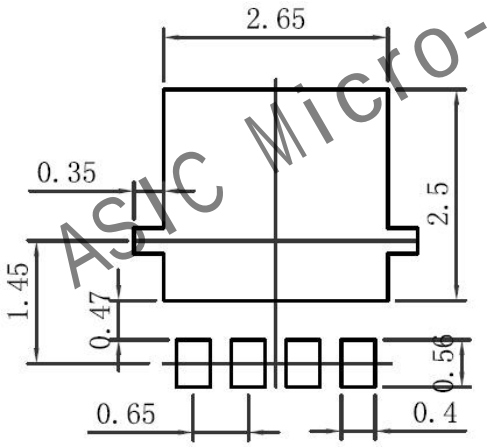
Dimension

PDFNWB3.3x3.3-8L



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°

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