Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	5mΩ@10V	40A
	8mΩ@4.5V	

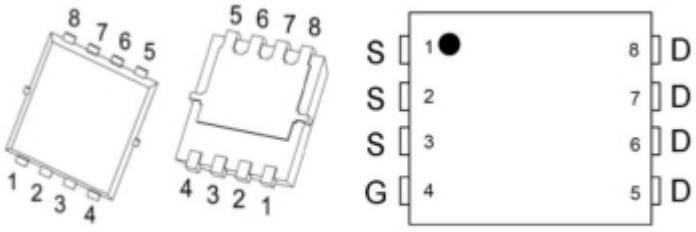
Feature

- Fast switching speed
- Low On-Resistance
- 100% Single Pulse avalanche energy Test

Application

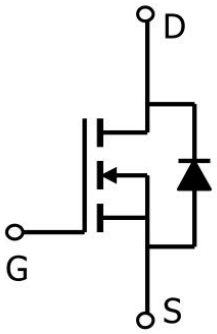
- DC-DC Converters.
- Power Management

Package



PDFNWB3.3×3.3-8L

Circuit diagram



Marking

40N05G =Device Code
* =Month Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

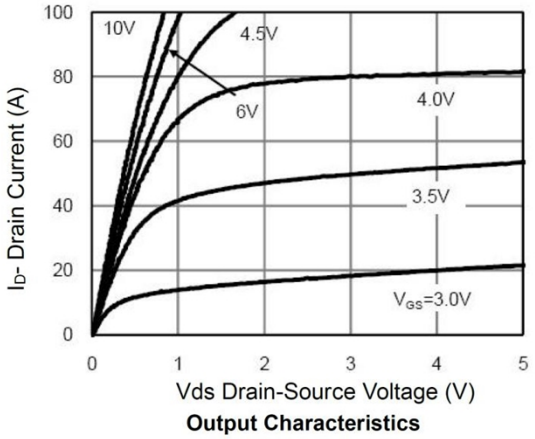
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current(Tc=25°C)	I_D	40	A
Pulse Drain Current Tested	I_{DM}	160	A
Maximum Power Dissipation(Tc=25°C)	P_D	35	W
Thermal Resistance-Junction to Case	$R_{\theta JC}$	3.85	℃/W
Maximum Junction Temperature	T_J	-55 to 150	℃
Storage Temperature Range	T_{STG}	-55 to 150	℃

Electrical characteristics

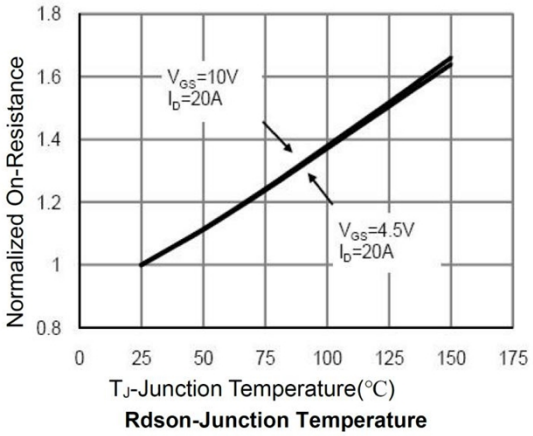
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250mA	40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =40V,V_{GS} = 0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.5	2.5	V
Drain-Source On-State Resistance[3]	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		5	8	mΩ
		V_{GS} =4.5V, I_D =10A		8	11	
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	V_{DS}=20V, V_{GS}=0V, f=1MHz		1278		pF
Output Capacitance	C_{oss}			583		
Reverse Transfer Capacitance	C_{rss}			49		
Total Gate Charge	Q_g	V_{DS}=20V, I_D =20A, V_{GS}=10V		25		pF
Gate-Source Charge	Q_{gs}			5.4		
Gate-Drain Charge	Q_{gd}			3.2		
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=20V, I_D =20A, V_{GS}=10V, R_G =1.6A		6		nS
Rise Time	T_r			2.5		
Turn-Off Delay Time	$T_{d(off)}$			22		
Fall Time	T_f			3.5		
Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1A			1.2	V

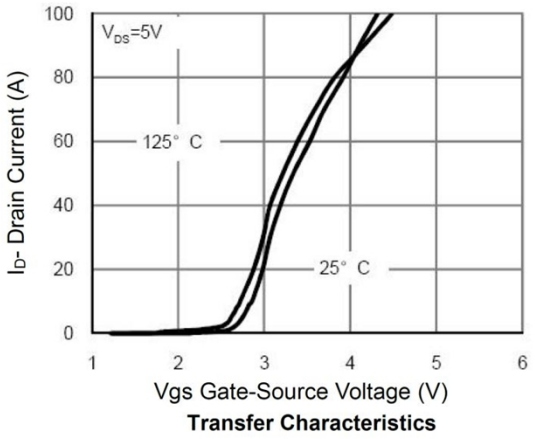
Typical Characteristics



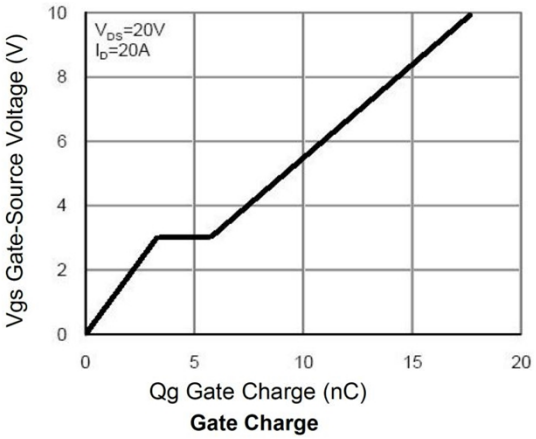
Output Characteristics



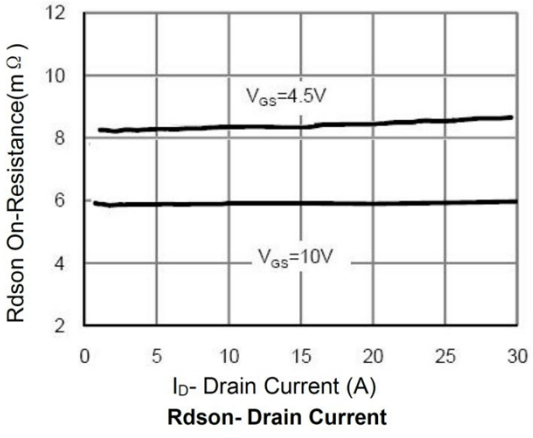
Rdson-Junction Temperature



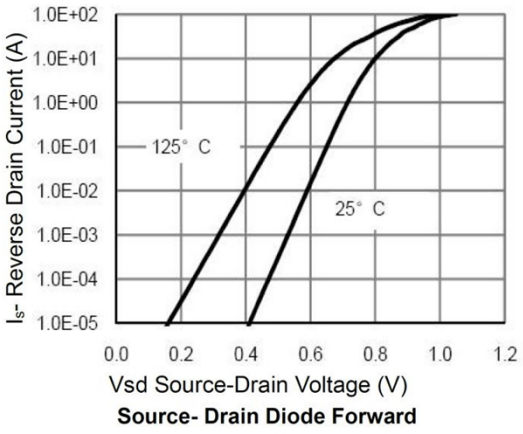
Transfer Characteristics



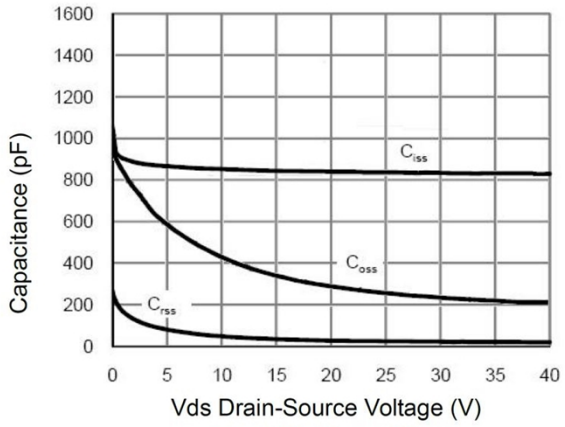
Gate Charge



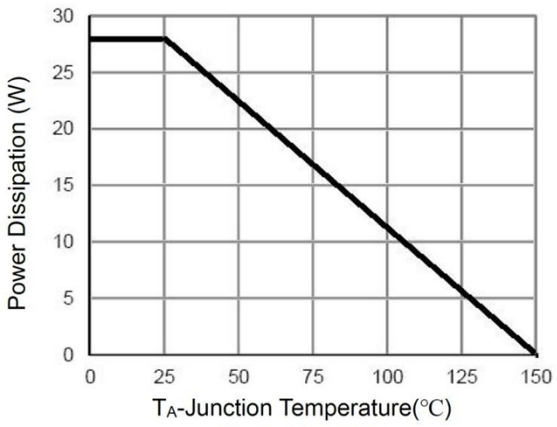
Rdson- Drain Current



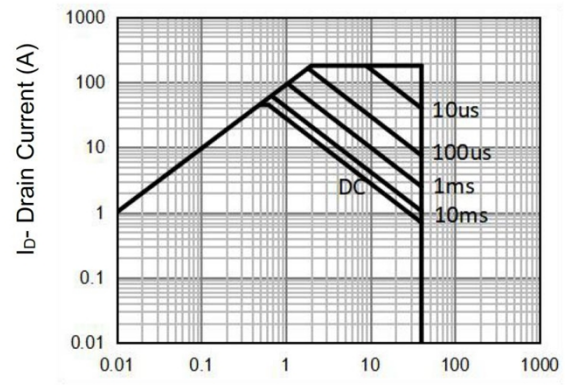
Source- Drain Diode Forward



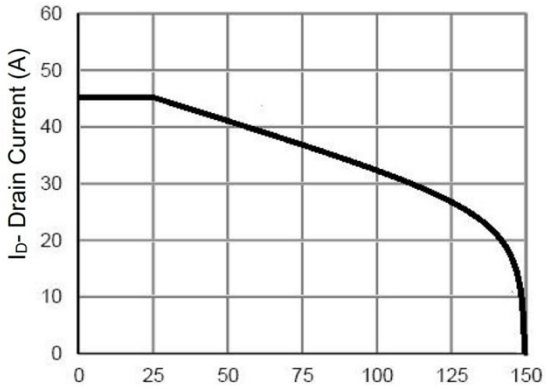
Capacitance vs Vds



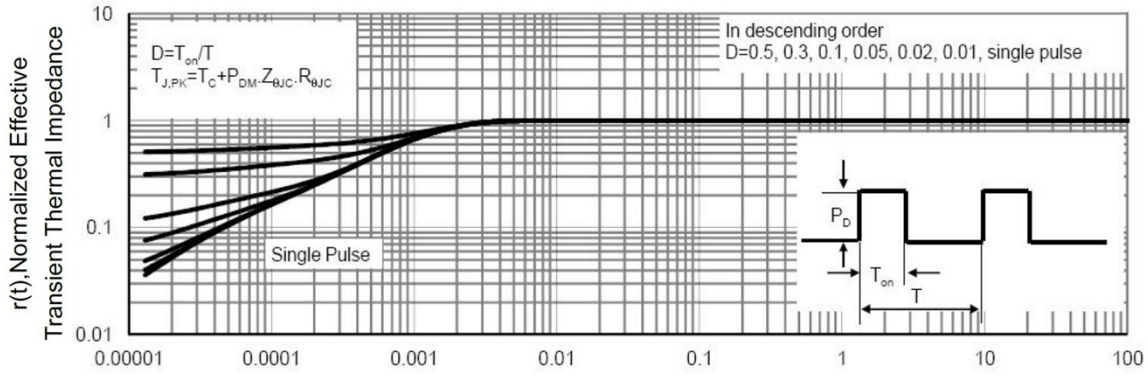
Power De-rating



Safe Operation Area (Note 3)

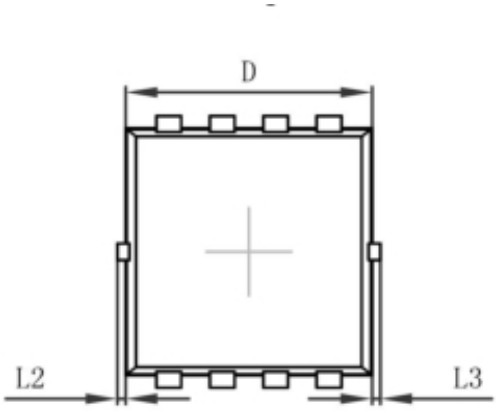


Current De-rating

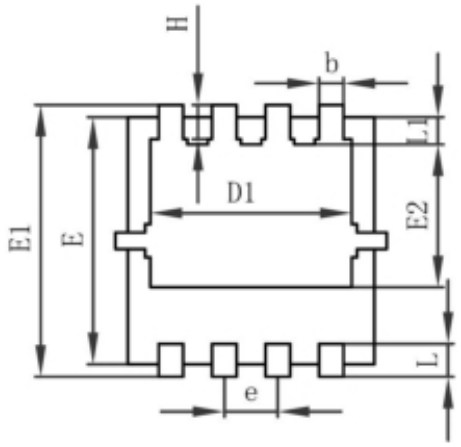


Normalized Maximum Transient Thermal Impedance

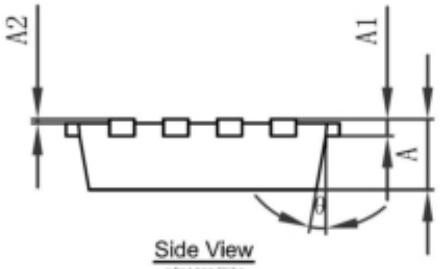
PDFNWB3.3×3.3-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	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°