

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
40V	5mΩ@10V	55A
	8mΩ@4.5V	

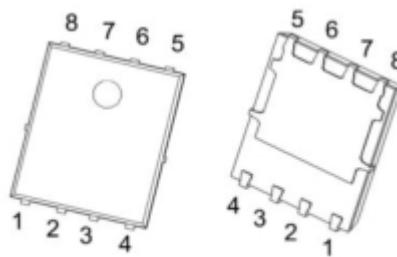
## Feature

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

## Application

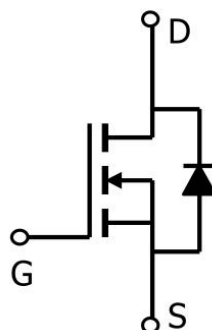
- DC-DC Converters.
- Power Management

## Package



PDFNWB5X6-8L

## Circuit diagram



## Marking



**40N05G** =Device Code  
**\*** =Month Code

## Absolute maximum ratings

(T<sub>a</sub>=25°C unless otherwise noted)

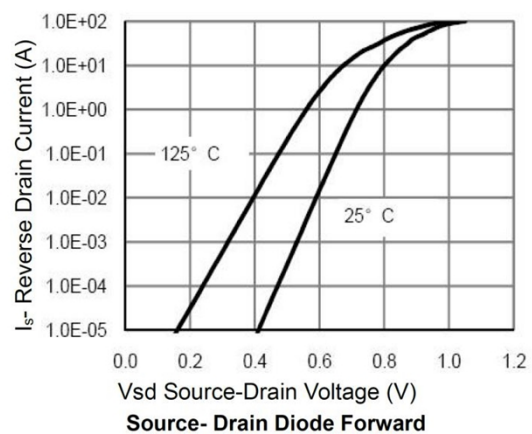
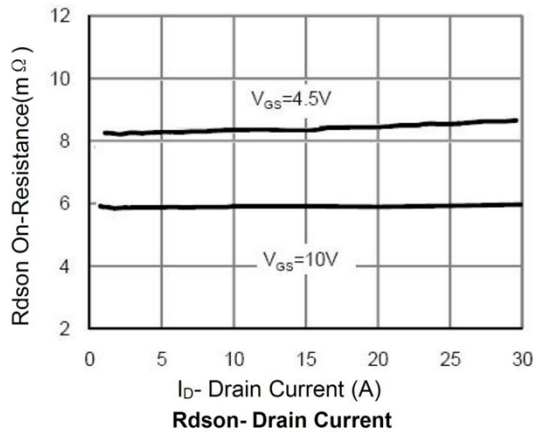
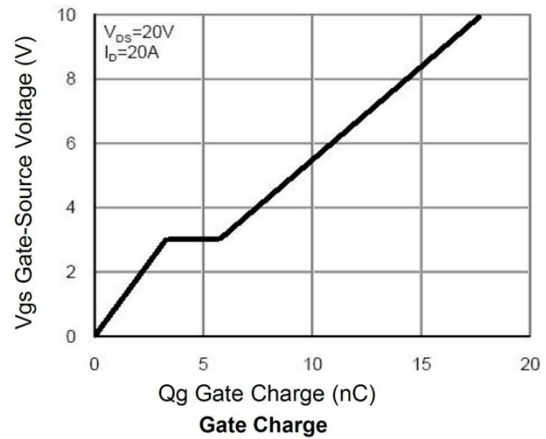
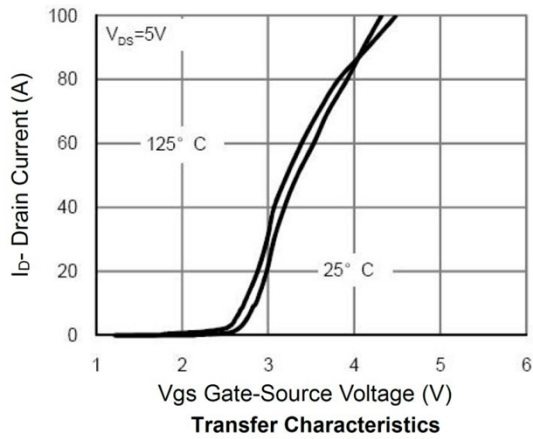
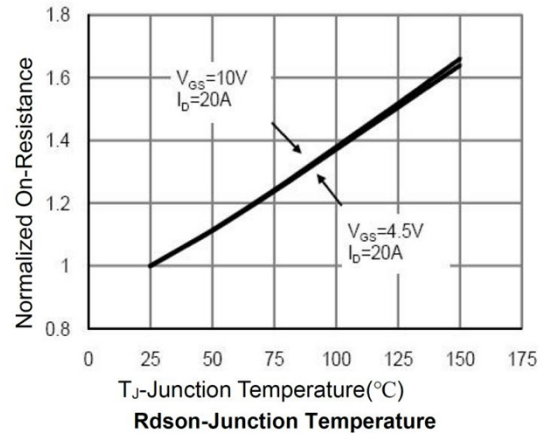
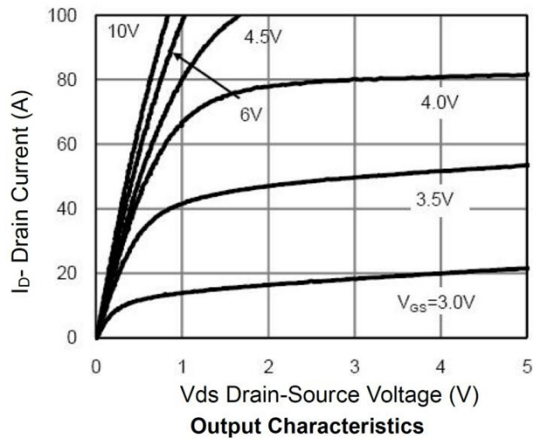
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	40	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current(Tc=25°C)	I <sub>D</sub>	55	A
Pulse Drain Current Tested	I <sub>DM</sub>	220	A
Maximum Power Dissipation(Tc=25°C)	P <sub>D</sub>	45	W
Thermal Resistance-Junction to Case	R <sub>θJC</sub>	2.77	°C/W
Maximum Junction Temperature	T <sub>J</sub>	-55 to 150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to 150	°C

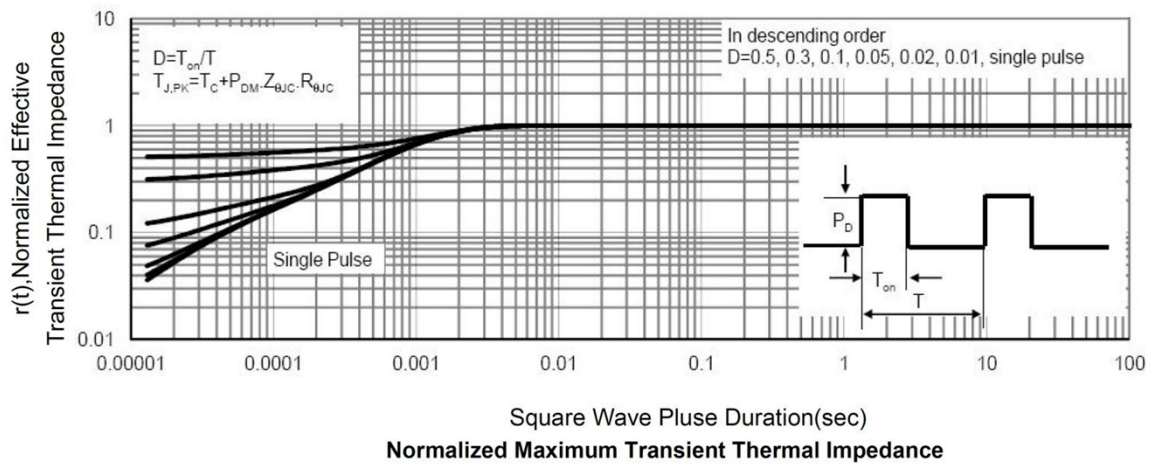
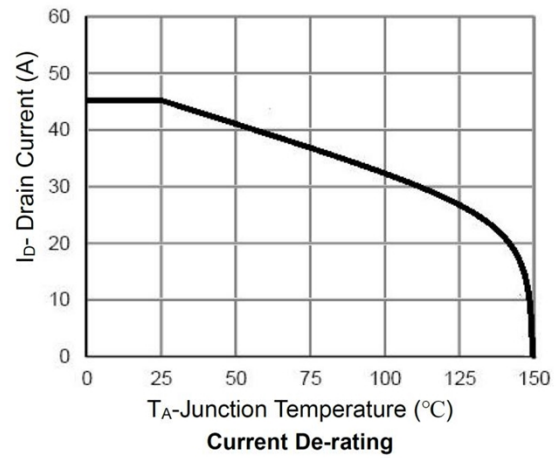
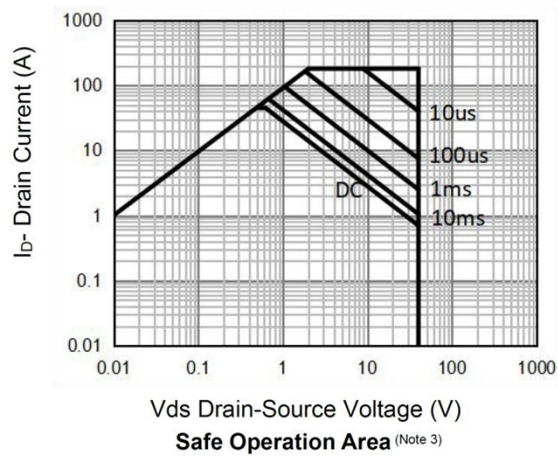
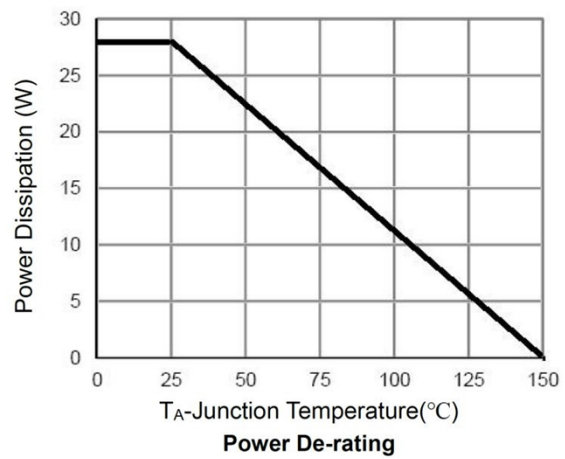
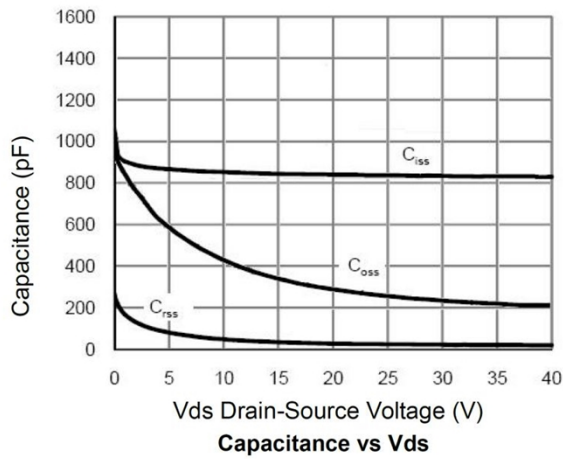
## Electrical characteristics

( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

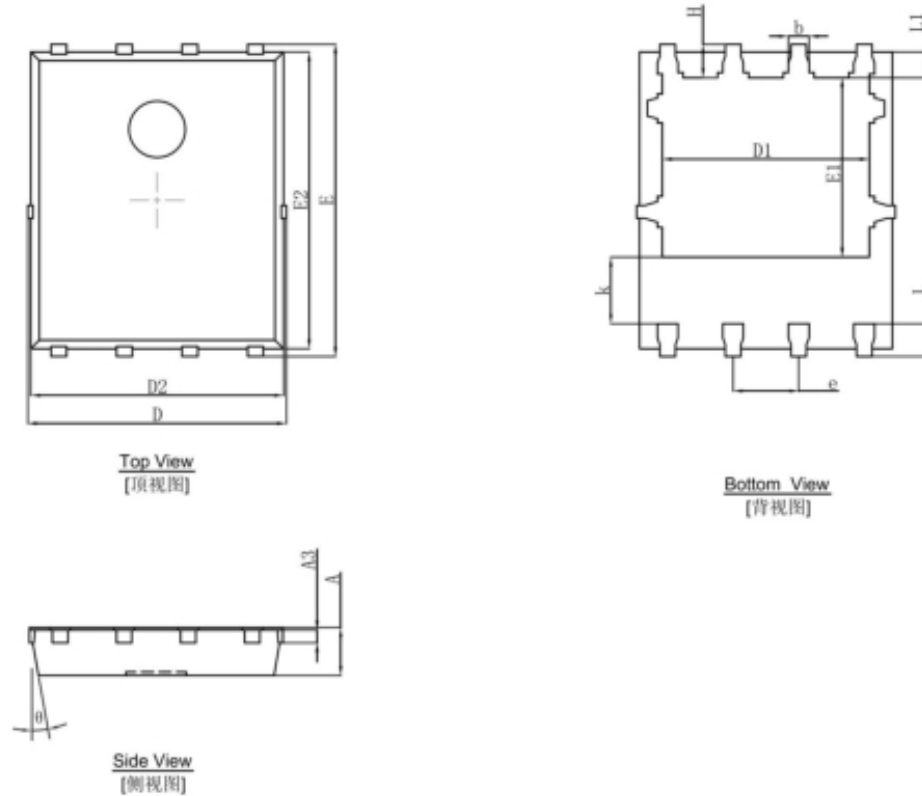
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V <sub>GS</sub> = 0V, I <sub>D</sub> =250mA	40			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =40V,V <sub>GS</sub> = 0V			1	uA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V , V <sub>DS</sub> =0V			±100	uA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	1.5	2.5	V
Drain-Source On-State Resistance <sup>3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =20A		5	8	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =10A		8	11	
Dynamic and Switching Characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V, f=1MHz		1278		pF
Output Capacitance	C <sub>oss</sub>			583		
Reverse Transfer Capacitance	C <sub>rss</sub>			49		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =20V, I <sub>D</sub> =20A, V <sub>GS</sub> =10V		25		pF
Gate-Source Charge	Q <sub>gs</sub>			5.4		
Gate-Drain Charge	Q <sub>gd</sub>			3.2		
Turn-On Delay Time	T <sub>d(on)</sub>	V <sub>DD</sub> =20V, I <sub>D</sub> =20A, V <sub>GS</sub> =10V, R <sub>G</sub> =1.6A		6		nS
Rise Time	T <sub>r</sub>			2.5		
Turn-Off Delay Time	T <sub>d(off)</sub>			22		
Fall Time	T <sub>f</sub>			3.5		
Diode Characteristics						
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A			1.2	V

## Typical Characteristics





## PDFNWB5X6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In 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°