Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-40V	25mΩ@-10V	-16A
	35mΩ@-4.5V	

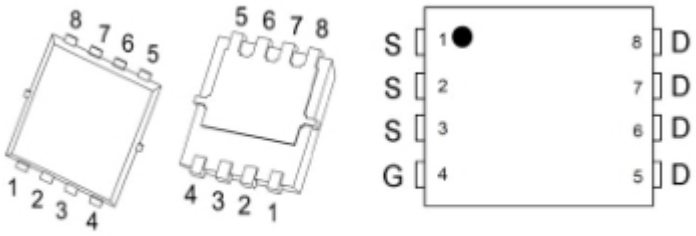
Feature

- TrenchFET Power MOSFET
- Excellent RDS(on) and Low Gate Charge

Applications

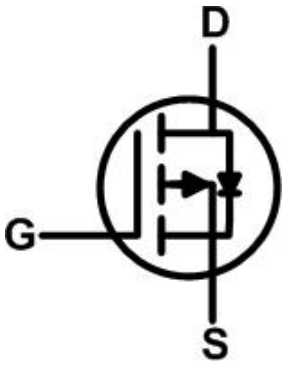
- Advanced trench process technology
- High density cell design for ultra-low on-resistance
- High power and current handing capability
- Ideal for Lion battery pack applications

Package



PDFNWB3.3×3.3-8L

Circuit diagram



Marking

40P25 = 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[1]	I_D	-16	A
Pulsed Drain Current[2]	I_{DM}	-64	A
Power Dissipation[3]	P_D	28	W
Thermal Resistance from Junction to Ambient[1]	$R_{\theta JA}$	4.4	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 To 150	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-32V, V_{GS} = 0V			-1	uA
Gate-Source Leakage	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	uA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.2	-1.5	-2.2	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-5A		25	35	mΩ
		V_{GS} =-4.5V, I_D =-4A		35	50	
Forward Transconductance	g_{FS}	V_{DS}=-5V,I_D=-8A		12		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-20V, V_{GS}=0V, f=1MHz		2700		pF
Output Capacitance	C_{oss}			370		
Reverse Transfer Capacitance	C_{rss}			310		
Switching Characteristics						
Total Gate Charge@-4.5V	Q_g	V_{DS} =-15V , I_D=-4.5A, I_D =-1A		11.5		nC
Gate-Source Charge	Q_{gs}			3.5		
Gate-Drain Charge	Q_{gd}			3.3		
Turn-on Delay Time	$T_{d(on)}$	V_{DD}=-15V, V_{GS}=-10V, R_G=3Ω, I_D =-1A		22		nS
Turn-on Rise Time	T_r			15.7		
Turn-off Delay Time	$T_{d(off)}$			59		
Turn-off Fall Time	T_f			5.5		
Drain-Source Diode Characteristics						
Continuous Source Current[1,4]	I_S	V_G=V_D=0V,Force Current			-8	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-1A, T_J=25℃			-1.2	V

Notes:

1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width≦300us , duty cycle≦2%
3. The power dissipation is limited by 150℃ junction temperature
4. The data is theoretically the same as I D and I DM , in real applications , should be limited by total power dissipation.

Typical Characteristics

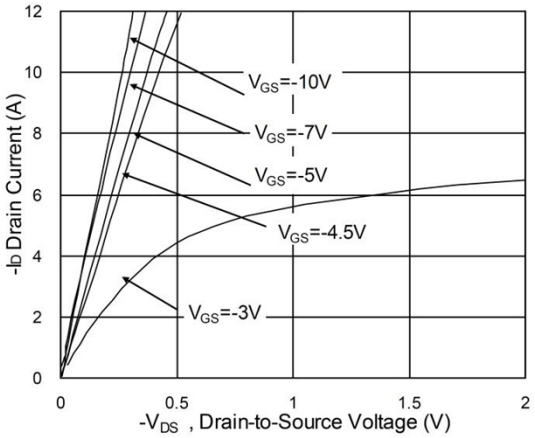


Fig.1 Typical Output Characteristics

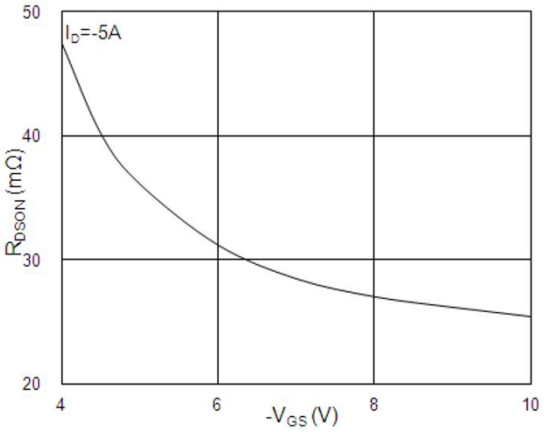


Fig.2 On-Resistance vs. Gate-Source Voltage

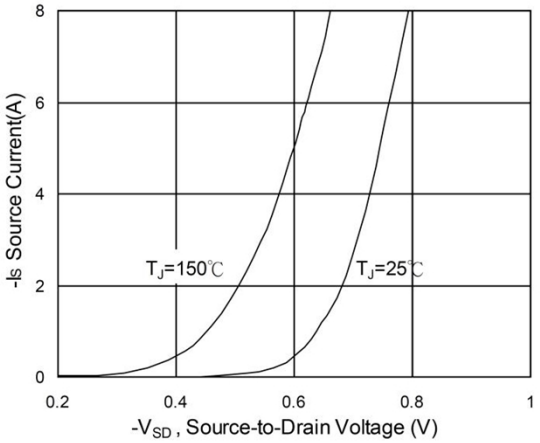


Fig.3 Forward Characteristics of Reverse

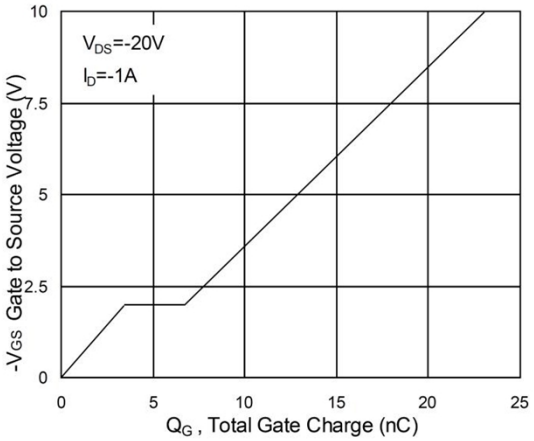


Fig.4 Gate Charge Characteristics

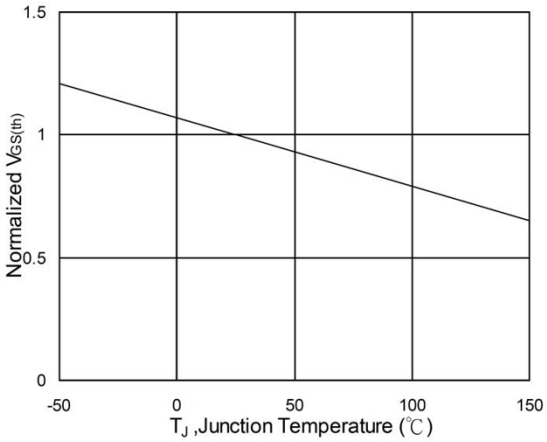


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

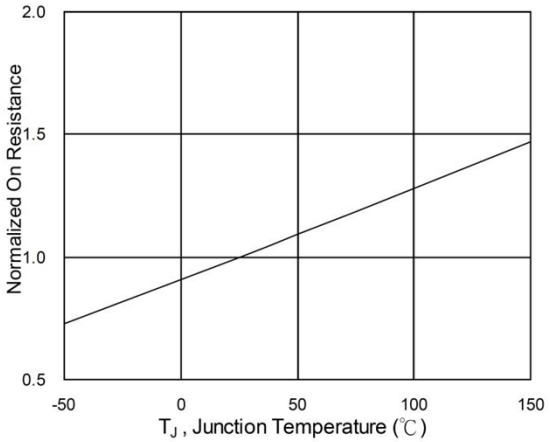


Fig.6 Normalized R_{DSON} vs. T_J

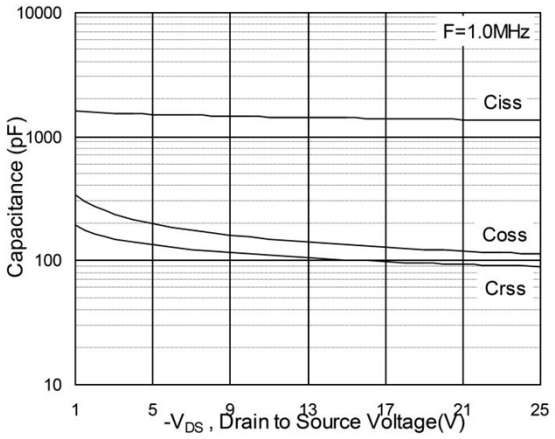


Fig.7 Capacitance

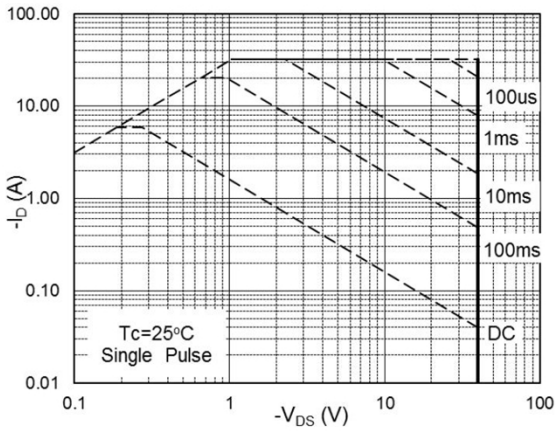


Fig.8 Safe Operating Area

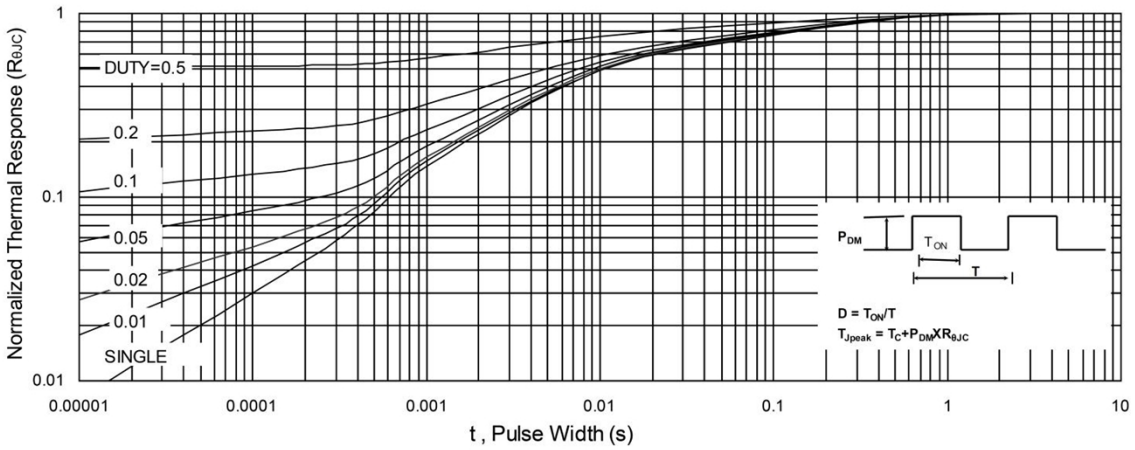
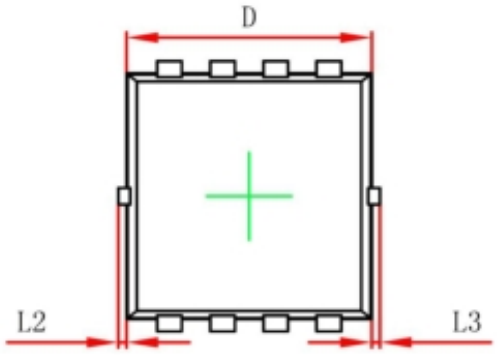
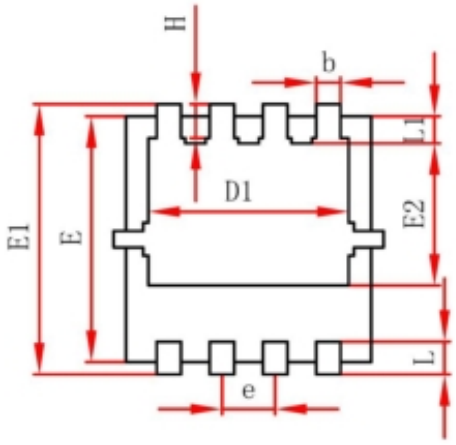


Fig.9 Normalized Maximum Transient Thermal Impedance

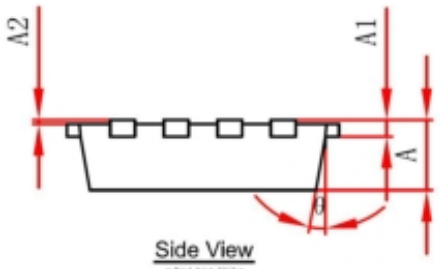
PDFNWB3.3×3.3-8L Package Information



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°