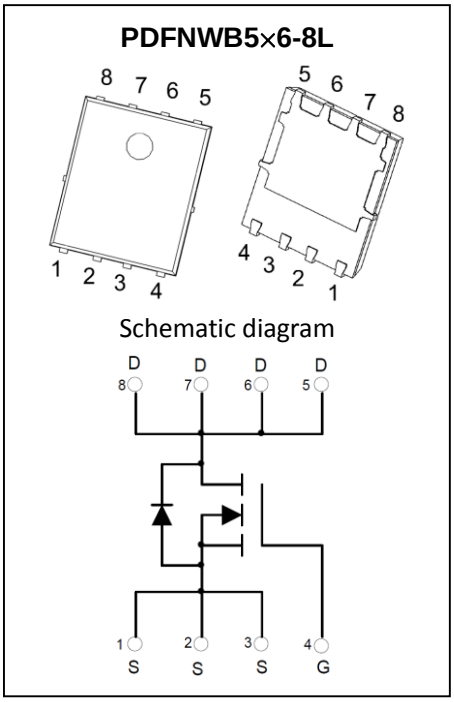
60V N-Channel MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	2.3mΩ@10V	125A



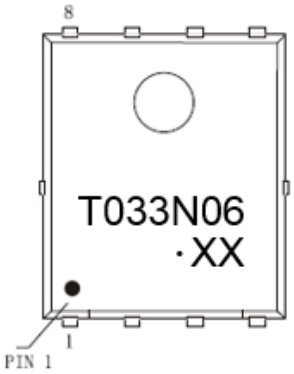
Feature

- Shielded Gate Trench Technology
- Low $R_{DS(on)}$
- Low Gate Charge
- AEC-Q101 qualified (Automotive grade with suffix "Q".)

Application

- High efficiency power supply
- Secondary synchronus rectifier

MARKING:



T033N06 = Device code

XX = Date Code

Solid dot = Green Device

ABSOLUTE MAXIMUM RATINGS (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	125	A
Pulsed Drain Current	I_{DM}	600	A
Power Dissipation	P_D	3.1	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	40.3	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS (T_J=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	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =48V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage[1]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	2.0	3.0	V
Drain-source on-resistance[1]	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		2.3	3.3	mΩ
		V_{GS} =4.5V, I_D =20A		3.5	4.6	mΩ
Dynamic characteristics[2]						
Input capacitance	C_{iss}	V_{DS} =30V,V_{GS} =0V,f =1MHz		4895		pF
Output capacitance	C_{oss}			2208		
Reverse transfer capacitance	C_{rss}			171		
Switching Characteristics[2]						
Total gate charge	Q_g	V_{DS} =30V,V_{GS} =10V,I_D =25A		99		nC
Gate-source charge	Q_{gs}			16		
Gate-drain charge	Q_{gd}			27		
Turn-on delay time	$t_{d(on)}$	V_{DD} =30V, R_L =1.2Ω,I_D =25A, V_{GEN} =10 V, R_g =4.5Ω		14		ns
Turn-on rise time	t_r			36		
Turn-off delay time	$t_{d(off)}$			75		
Turn-off fall time	t_f			50		
Diode Characteristics						
Diode Forward Voltage[1]	V_{SD}	V_{GS}=0V , I_S=25A			1.02	V

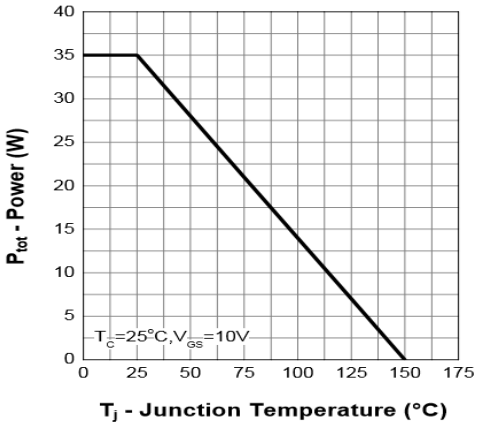
Notes:

1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

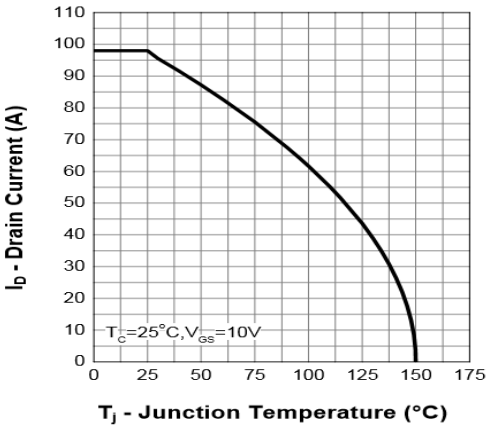
2. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

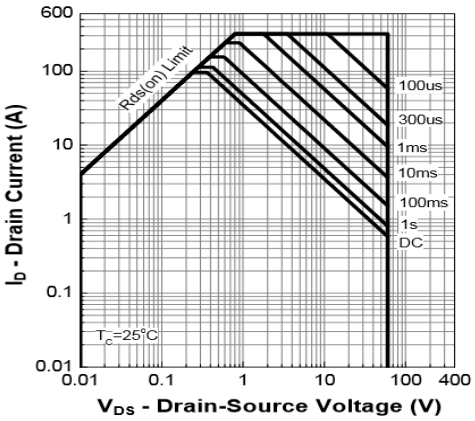
Power Capability



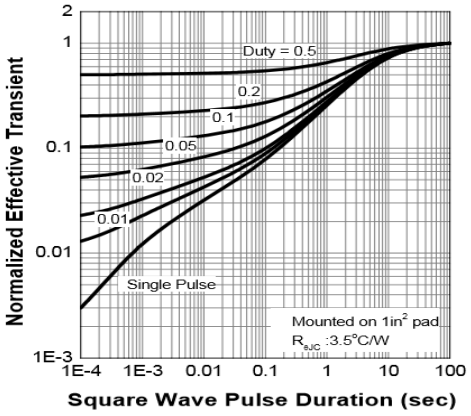
Current Capability



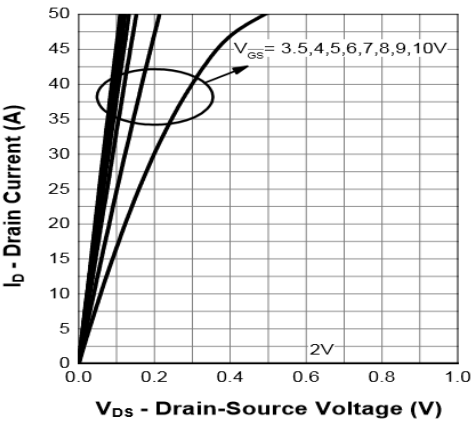
Safe Operation Area



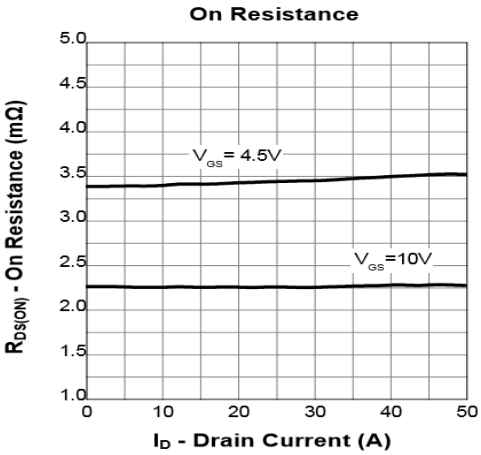
Transient Thermal Impedance



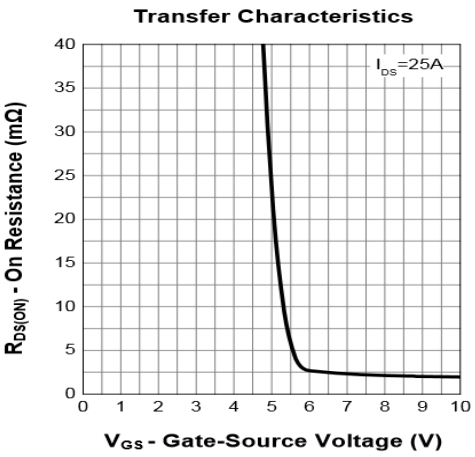
Output Characteristics

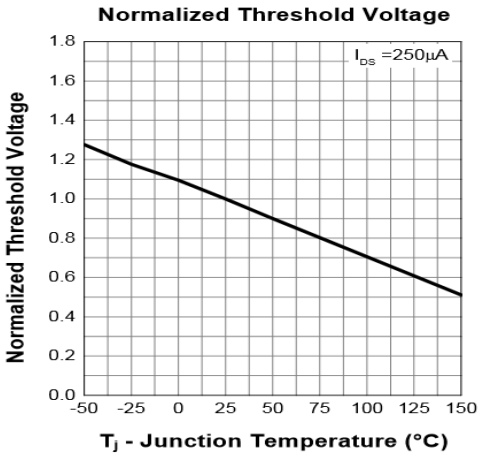


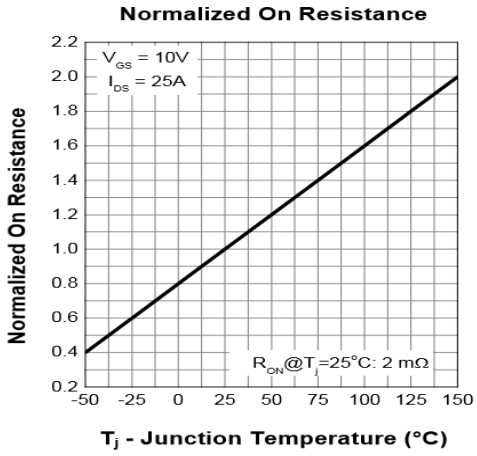
On Resistance

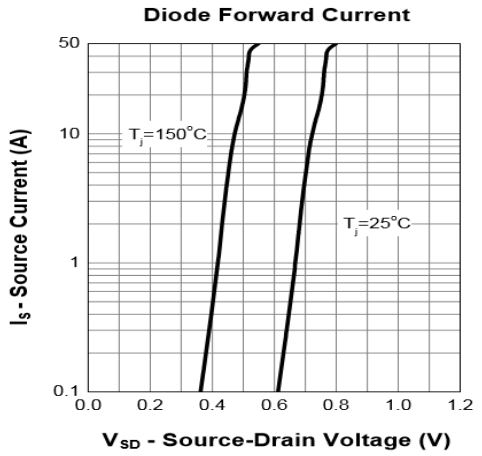


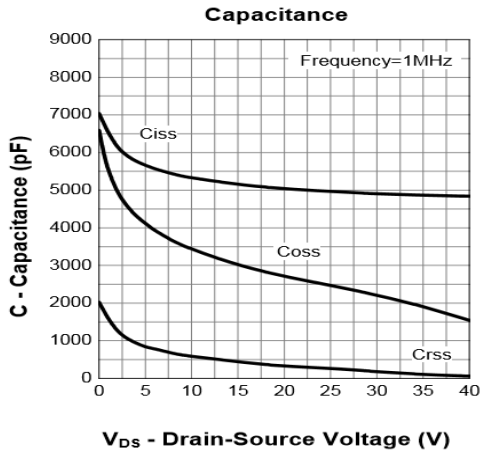
Typical Electrical and Thermal Characteristics

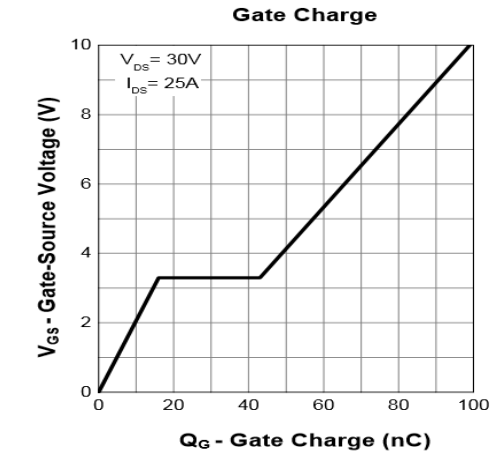




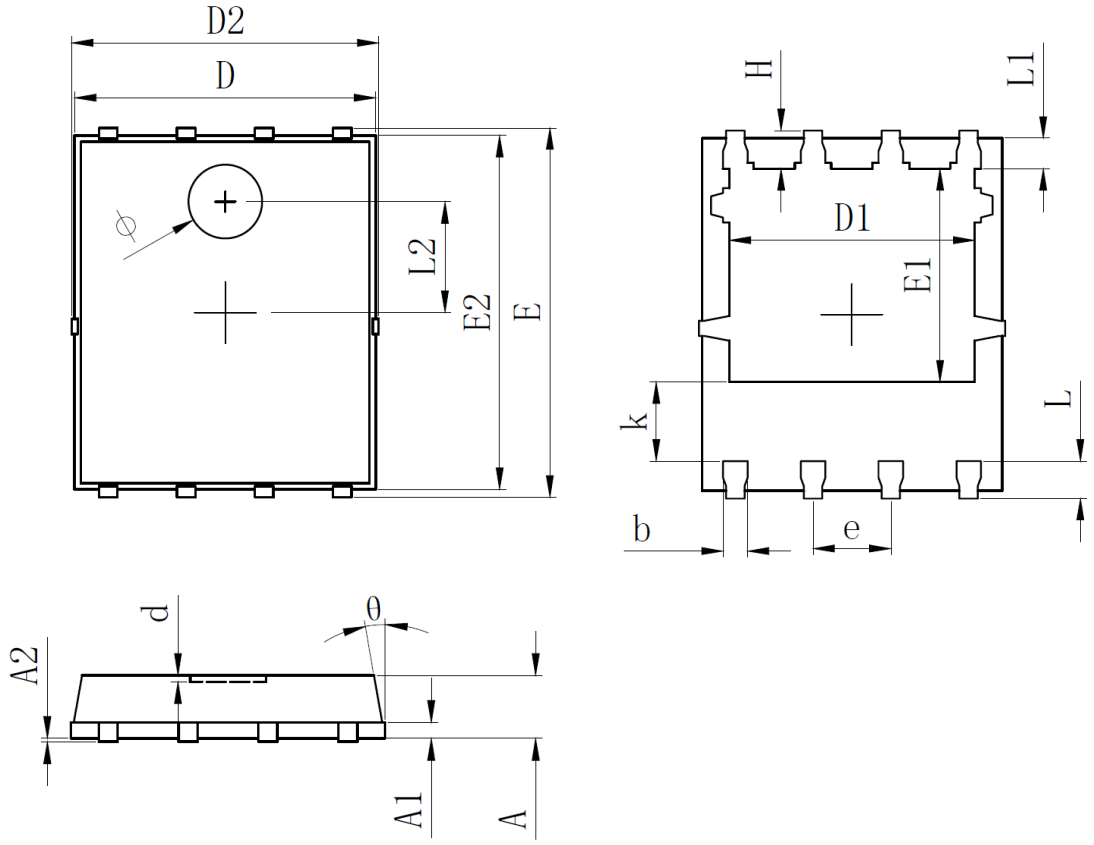








PDFNWB5×6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.254REF		0.010REF	
A2	0.000	0.050	0.000	0.002
D	4.824	4.976	0.190	0.196
D1	3.910	4.110	0.154	0.162
D2	4.924	5.076	0.194	0.200
E	5.924	6.076	0.233	0.239
E1	3.375	3.575	0.133	0.141
E2	5.674	5.826	0.223	0.229
b	0.350	0.450	0.014	0.018
e	1.270TYP		0.050TYP	
L	0.534	0.686	0.021	0.027
L1	0.424	0.576	0.017	0.023
k	1.190	1.390	0.047	0.055
H	0.549	0.701	0.022	0.028
θ	8°	12°	8°	12°
Φ	1.100	1.300	0.043	0.051
d	-	0.100	-	0.004