

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30V	6mΩ@10V	50A
	8.5mΩ@4.5V	

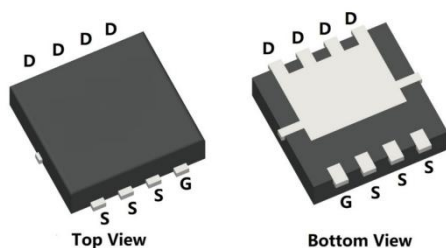
Feature

- Fast switching speed
- Low On-Resistance

Application

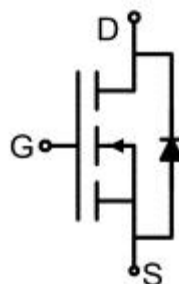
- Power Management
- DC-DC converter

Package

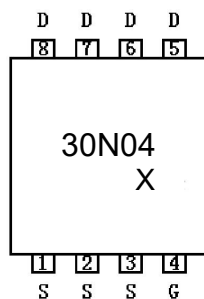


PDFN3*3-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C=25^{\circ}\text{C}$)	I_D	50	A
Pulsed Drain Current	I_{DM}	200	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	110	mJ
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	28	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	4.4	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

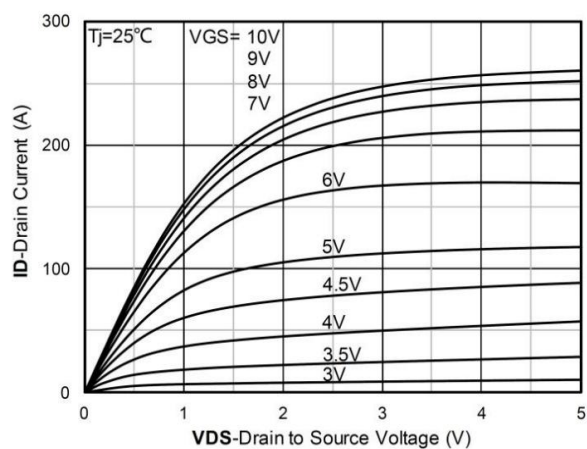
Electrical characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static 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} =24V, V _{GS} =0V, T _J =25°C			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.8	2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		4.7	6	mΩ
		V _{GS} =4.5V, I _D =15A		6.5	8.5	
Dynamic characteristics ²⁾						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f =1MHz		1788		pF
Output Capacitance	C _{oss}			225		
Reverse Transfer Capacitance	C _{rss}			180		
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V, I _D =20A		52.8		nC
Gate-Source Charge	Q _{gs}			12.3		
Gate-Drain Charge	Q _{gd}			10.8		
Turn-on delay time	t _{d(on)}	V _{DS} =20V, V _{GS} =10V, I _D =15A R _G =3Ω		9		nS
Turn-on rise time	t _r			15.5		
Turn-off delay time	t _{d(off)}			31		
Turn-off fall time	t _f			9		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				50	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =1A, T _J =25°C			1.2	V
Reverse Recovery Time	T _{rr}	I _S =15A, di/dt =-100A/μs		26		nS
Reverse Recovery Charge	Q _{rr}	T _J =25°C		11		nC

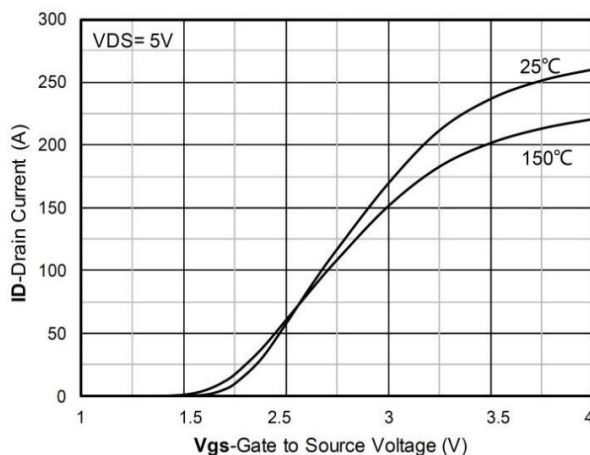
Notes:

- 1) The EAS test condition is $V_{DD}=15V, V_G=10V, L=0.5mH, R_G=25\Omega$.
- 2) Guaranteed by design, not subject to production.

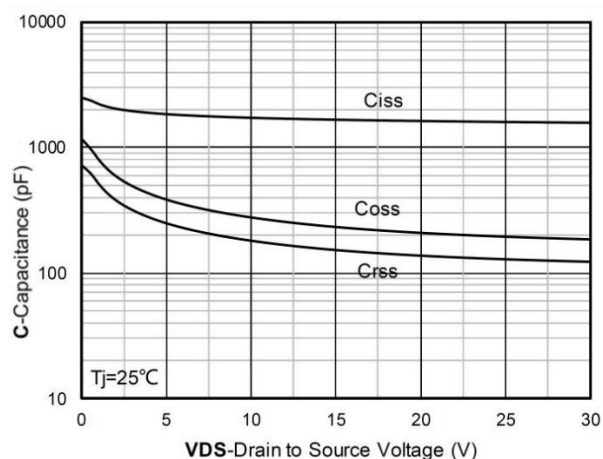
Typical Characteristics



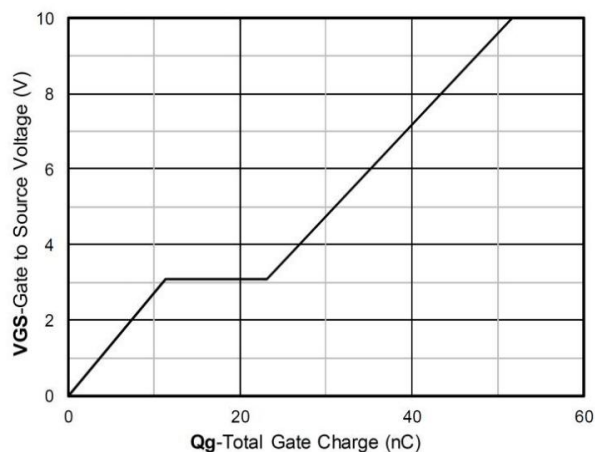
Output Characteristics



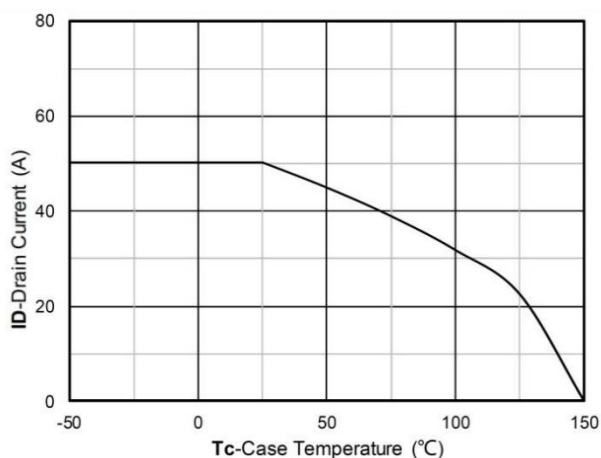
Transfer Characteristics



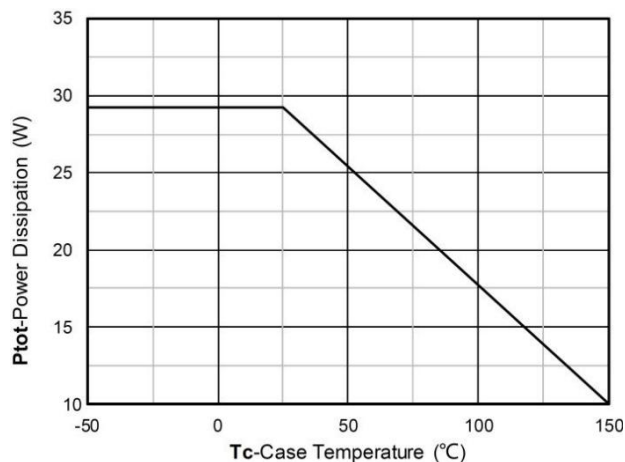
Capacitance Characteristics



Gate Charge

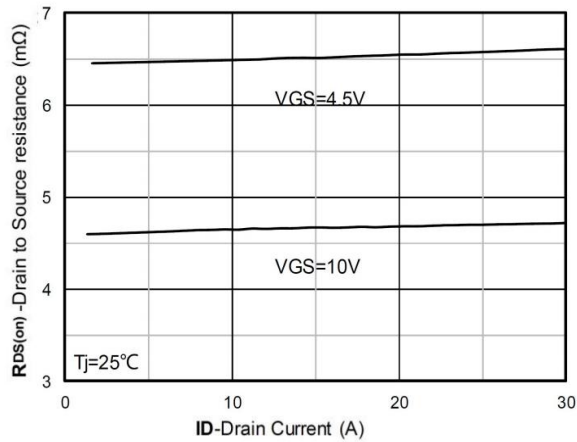


Current dissipation

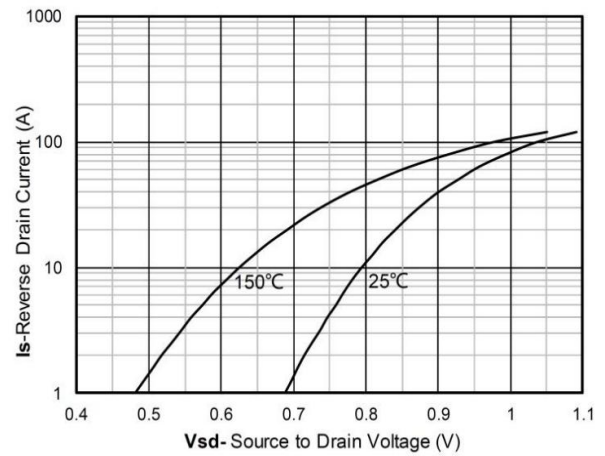


Power dissipation

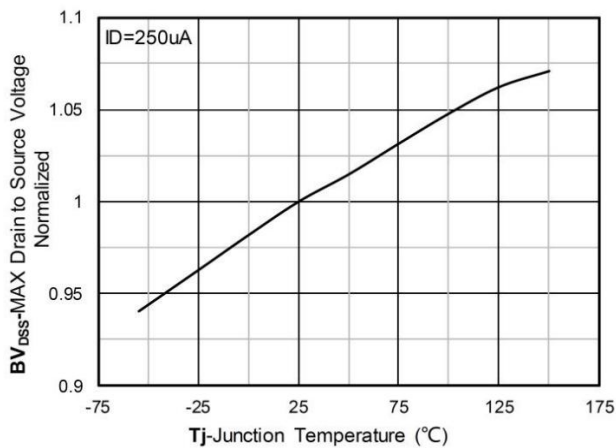
Typical Characteristics



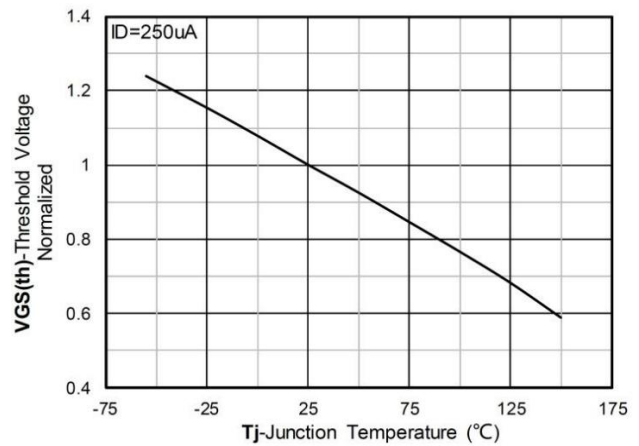
RDS(on) VS Drain Current



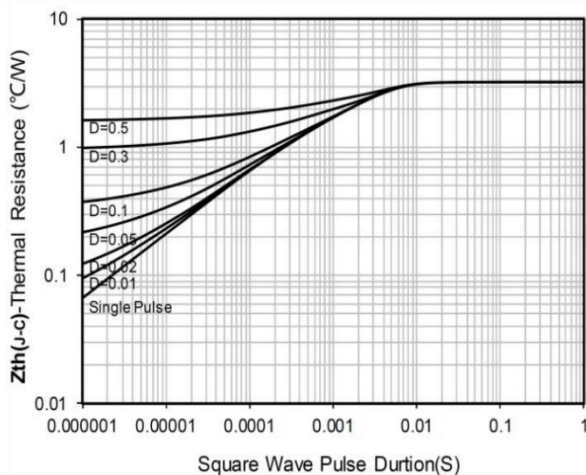
Forward characteristics of reverse diode



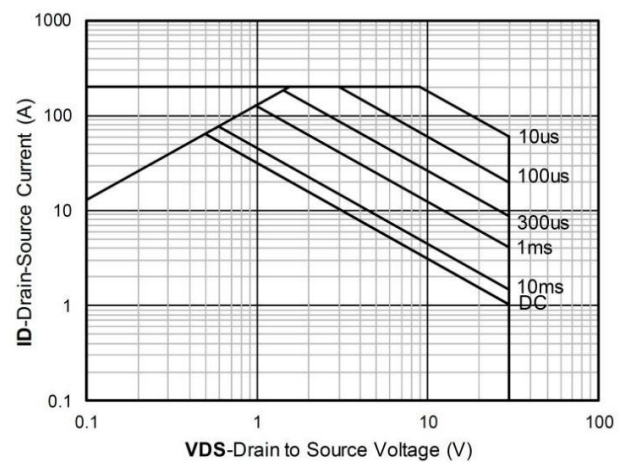
Normalized breakdown voltage



Normalized Threshold voltage

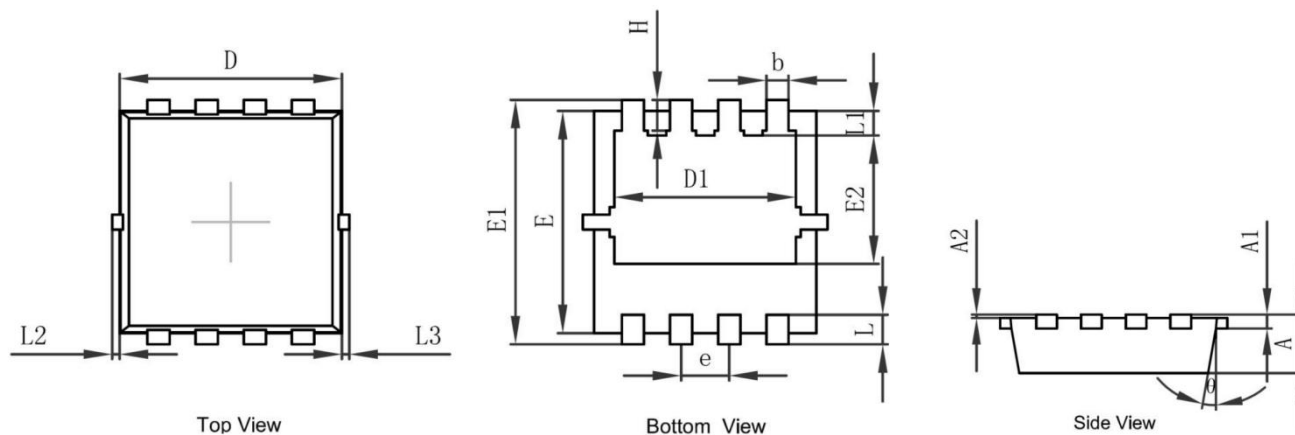


Maximum Transient Thermal Impedance



Safe Operation Area

PDFN3*3-8L Package Information



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	0.000	0.050	0.000	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	0.000	0.100	0.000	0.004
L3	0.000	0.100	0.000	0.004
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°