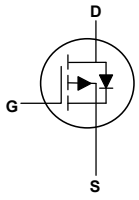
P-Channel Enhancement Mode MOSFET

Features

- Low Rdson for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Pin Description

DFN3X3-8L	Symbol
	

Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	-30	V
$R_{DS(ON)-Typ}$	15	mΩ
I_D	-32	A

Absolute Maximum Ratings(T_A=25℃, Unless Otherwise Noted)

Symbol	Parameter		P-Channel	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±25	V
T_J	Maximum Junction Temperature		-55 to 150	℃
T_{STG}	Storage Temperature Range		-55 to 150	℃
I_{DM} ①	Pulse Drain Current Tested		-70	A
I_D	Continuous Drain Current	T_C=25℃	-32	A
I_D	Continuous Drain Current	T_A=25℃	-10.5	A
P_D	Maximum Power Dissipation	T_C=25℃	29.8	W
P_D	Maximum Power Dissipation	T_A=25℃	3.1	W
I_{AS}	Avalanche Current	L=0.5mH	14	A
E_{AS}	Avalanche Energy, Single pulse	L=0.5mH	49	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$ ③	Thermal Resistance-Junction to Ambient	75	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case	4.2	℃/W

Note ①: Max. current is limited by bonding wire.

Note ②: UIS tested and pulse width are limited by maximum junction temperature 150℃.

Note ③: Surface Mounted on 1in² FR-4 board with 1oz.

Electrical Characteristics (T_J=25℃, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0V	---	---	-1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1.3	---	-2.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±25V, V_{DS}=0V	---	---	±10	uA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=-10V, I_D=-16A	---	15	19	mΩ
		V_{GS}=-5V, I_D=-8A	---	24	32	mΩ
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, Freq.=1MHz	---	1000	---	pF
C_{oss}	Output Capacitance		---	220	---	
C_{rss}	Reverse Transfer Capacitance		---	170	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DD}=-15V, R_L=15Ω, I_{DS}=-1A, V_{GEN}=-10V, R_G=6Ω	---	11.2	---	nS
T_r	Turn-on Rise Time		---	10.6	---	
$T_{d(off)}$	Turn-off Delay Time		---	37	---	
T_f	Turn-off Fall Time		---	50	---	
Q_g	Total Gate Charge	V_{DS}=-15V , V_{GS}=-10V , I_D=-16A	---	20	---	nC
Q_{gs}	Gate-Source Charge		---	1.1	---	
Q_{gd}	Gate-Drain Charge		---	7.7	---	
Source-Drain Characteristics						
V_{SD}④	Diode Forward Voltage	V_{GS}=0V , I_S=-1A , T_J=25℃	---	-0.7	-1.0	V
t_{rr}	Reverse Recovery Time	I_F=-16A , di/dt=100A/μs, T_J=25℃	---	18	---	nS
Q_{rr}	Reverse Recovery Charge		---	9	---	nC

Note ④: Pulse test (pulse width 300us, duty cycle 2%).

Note ⑤ : Guaranteed by design, not subject to production testing.

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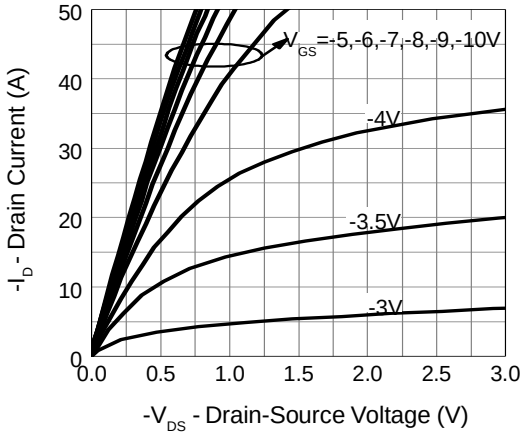
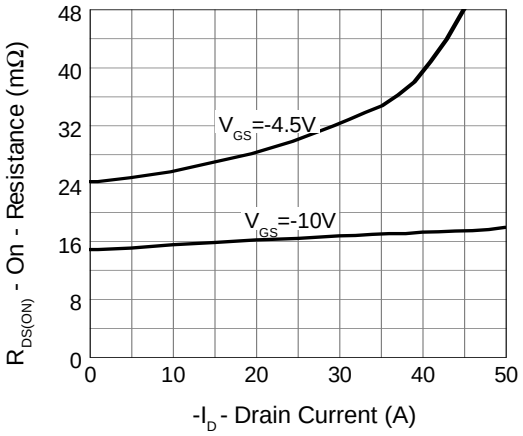
Typical Characteristics

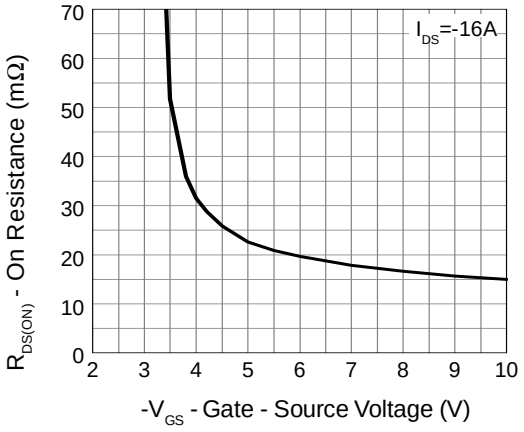
Output Characteristics



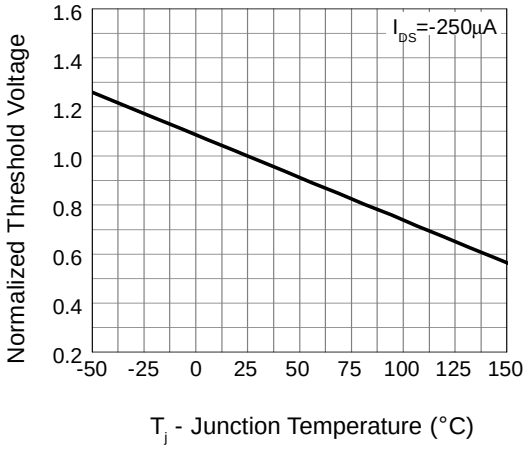
Drain-Source On Resistance



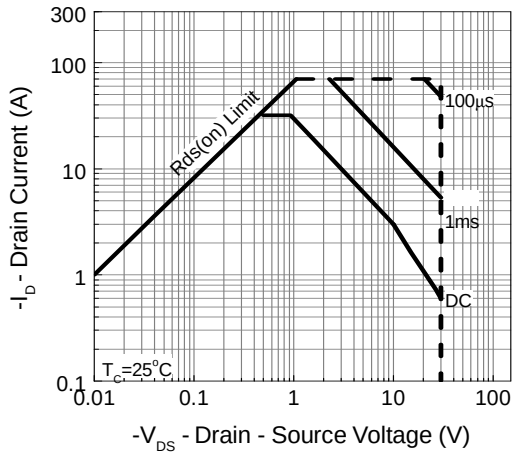
Gate-Source On Resistance



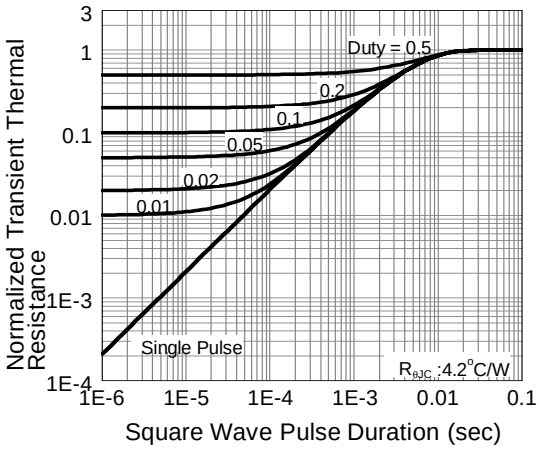
Gate Threshold Voltage



Safe Operation Area



Thermal Transient Impedance



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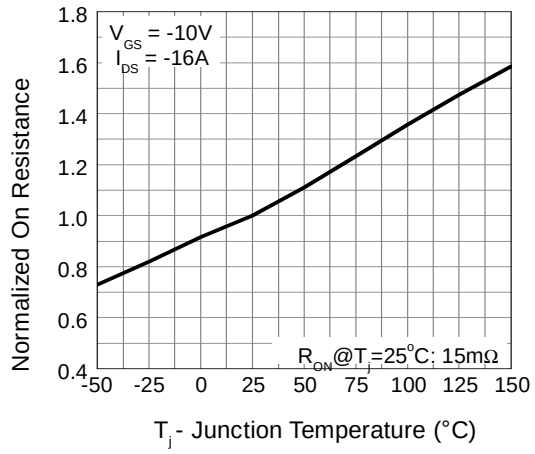
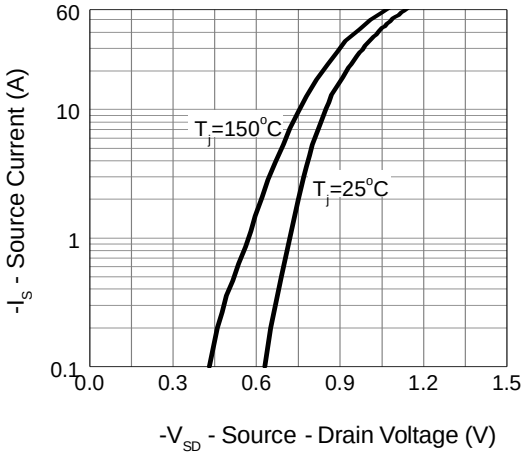
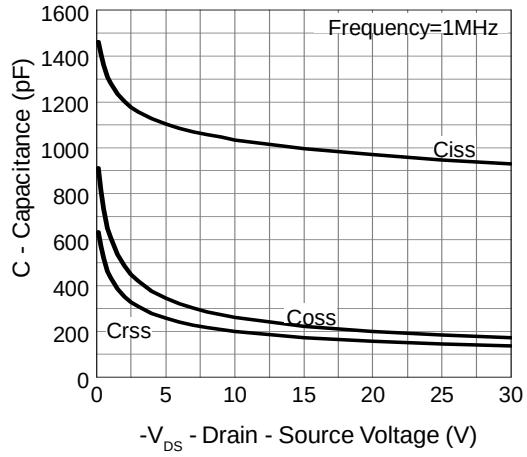
Drain-Source On Resistance



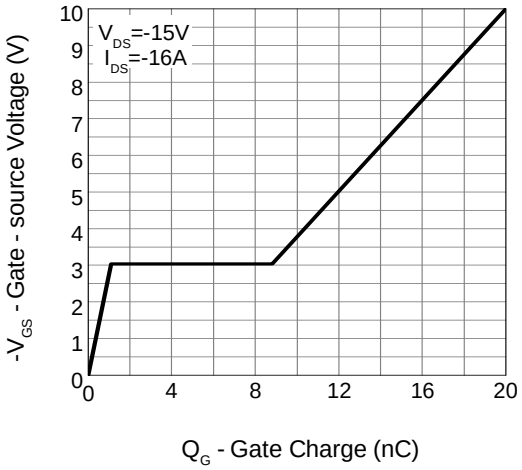
Source-Drain Diode Forward



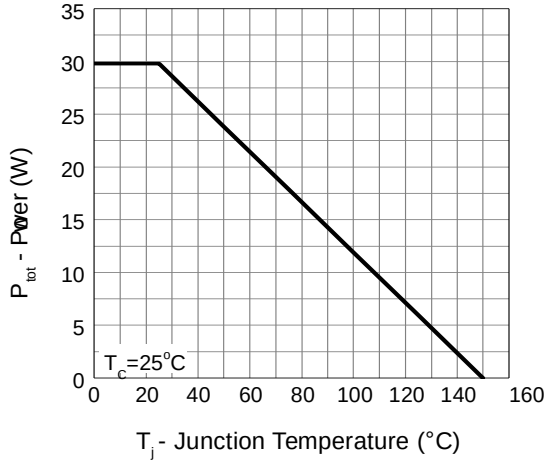
Capacitance



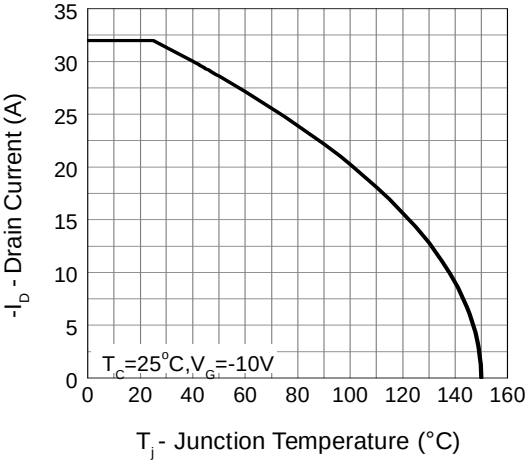
Gate Charge



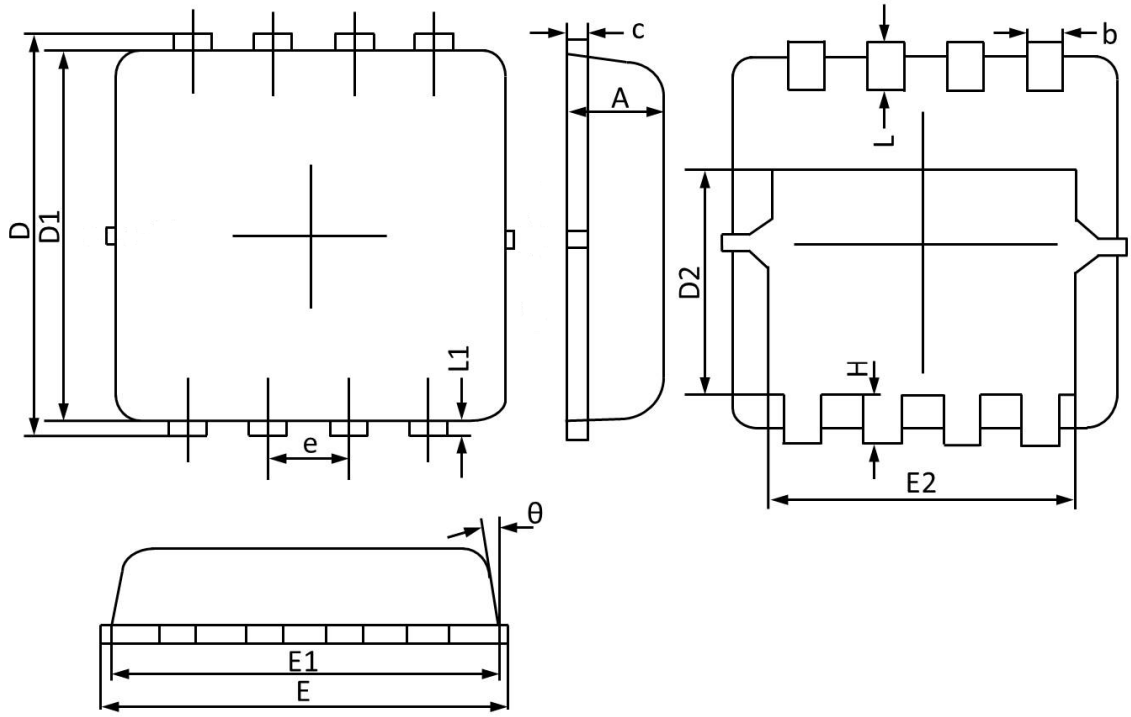
Power Dissipation



Drain Current



DFN3X3-8L Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.70	0.75	0.85	E1	2.90	3.10	3.25
b	0.24	0.30	0.35	E2	2.35	2.50	2.60
c	0.10	0.17	0.25	e	0.65 BSC		
D	3.10	3.30	3.45	H	0.30	0.40	0.50
D1	2.90	3.05	3.20	L	0.30	0.40	0.50
D2	1.45	1.70	1.95	L1	--	0.13	--
E	3.05	3.25	3.40	θ	0°		14°