

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

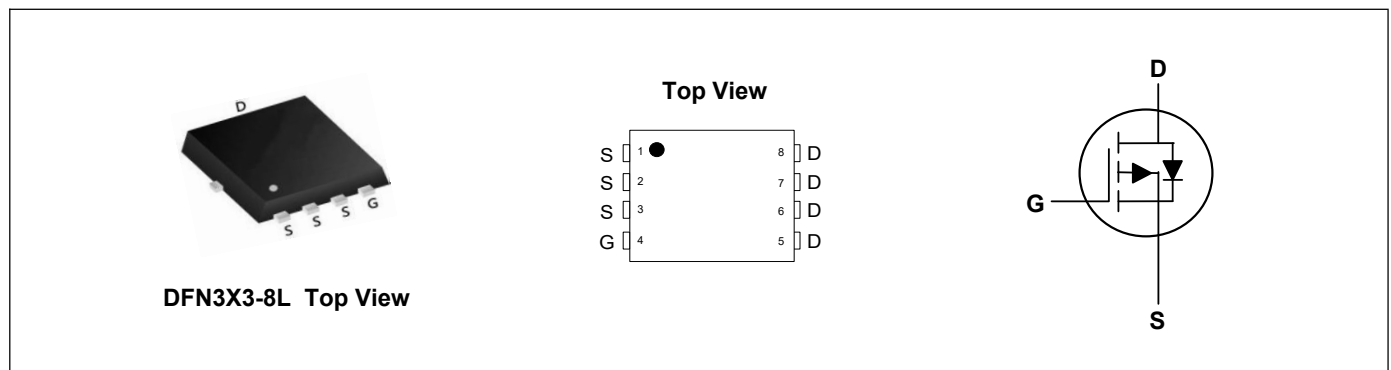
Applications

- High Frequency Point-of-Load, Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch

Product Summary



V_{DS}	-20	V
I_D	-11	A
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	13	m Ω
$R_{DS(ON)}$ (at $V_{GS}=-2.5V$)	16	m Ω



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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ¹	$I_D@T_A=25^\circ\text{C}$	-11	A
Continuous Drain Current ¹	$I_D@T_A=70^\circ\text{C}$	-8.8	A
Continuous Drain Current ¹	$I_D@T_C=25^\circ\text{C}$	-50	A
Continuous Drain Current ¹	$I_D@T_C=100^\circ\text{C}$	-22	A
Pulsed Drain Current ²	I_{DM}	-44	A
Single Pulse Avalanche Energy ³	EAS	36	mJ
Avalanche Current	I_{AS}	-12	A
Total Power Dissipation ³	$P_D@T_A=25^\circ\text{C}$	3.1	W
Total Power Dissipation ³	$P_D@T_A=70^\circ\text{C}$	2	W
Total Power Dissipation ³	$P_D@T_C=25^\circ\text{C}$	31.25	W
Total Power Dissipation ³	$P_D@T_C=100^\circ\text{C}$	12.5	W
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient ¹	$R_{\theta JC}$	---	80	$^\circ\text{C/W}$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	4	$^\circ\text{C/W}$

Electrical Characteristics (T_J=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250uA	-20	---	---	V
Static Drain-Source On-Resistance ²	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-11A	---	10	13	mΩ
		V _{GS} =-2.5V, I _D =-6A	---	13	16	mΩ
		V _{GS} =-1.8V, I _D =-1A	---	20	25	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250uA	-0.5	---	-1.0	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V, T _J =25°C	---	---	-1	uA
		V _{DS} =-16V, V _{GS} =0V, T _J =85°C	---	---	-30	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	---	---	±10	uA
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-11A	---	25	---	nC
Gate-Source Charge	Q _{gs}		---	1.6	---	
Gate-Drain Charge	Q _{gd}		---	11	---	
Turn-On Delay Time	T _{d(on)}	V _{DD} =-10V, V _{GS} =-4.5V, R _G =6Ω, R _L =10Ω, I _D =-1A	---	9	---	ns
Rise Time	T _r		---	13	---	
Turn-Off Delay Time	T _{d(off)}		---	26	---	
Fall Time	T _f		---	167	---	
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f=1MHz	---	1620	---	pF
Output Capacitance	C _{oss}		---	320	---	
Reverse Transfer Capacitance	C _{rss}		---	290	---	

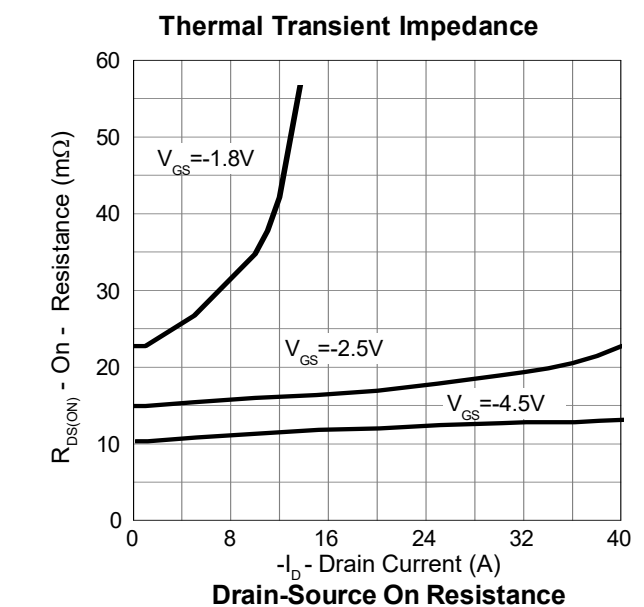
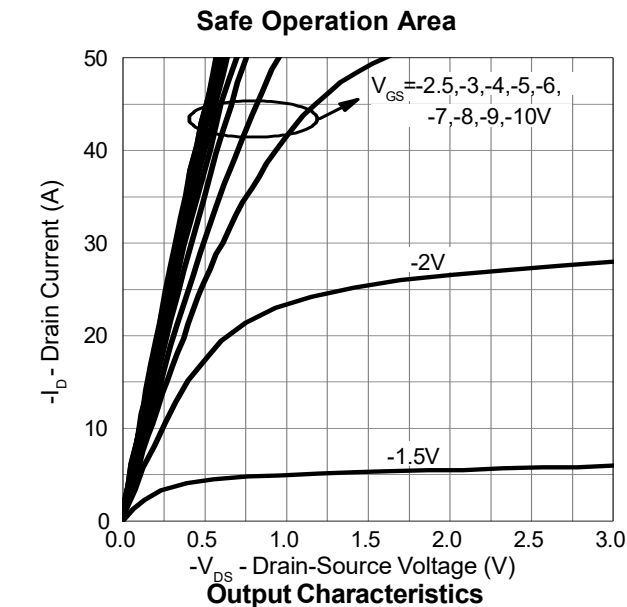
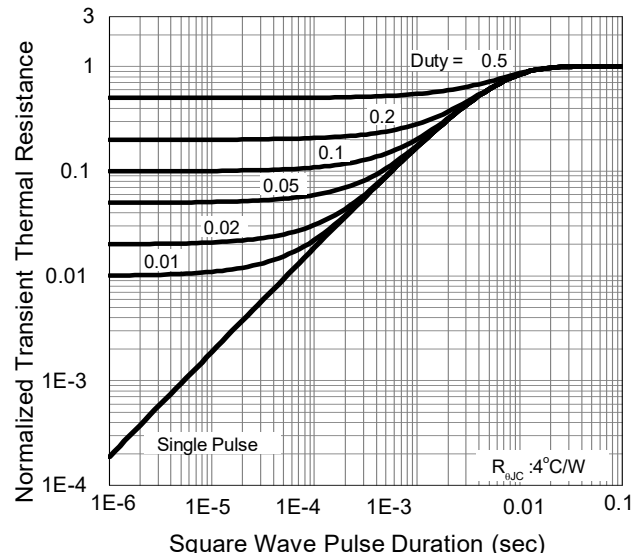
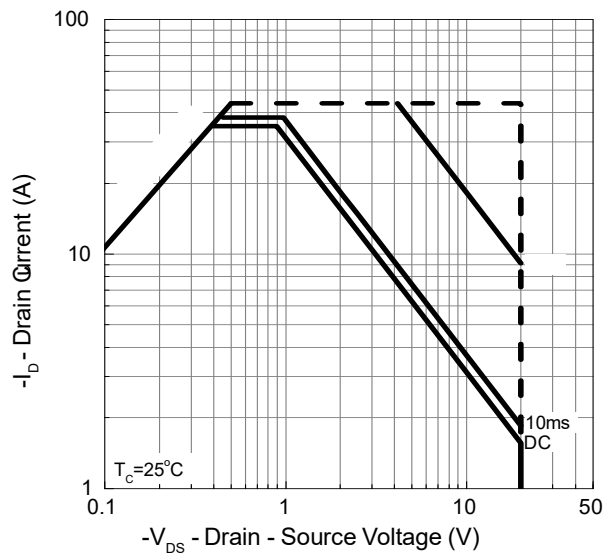
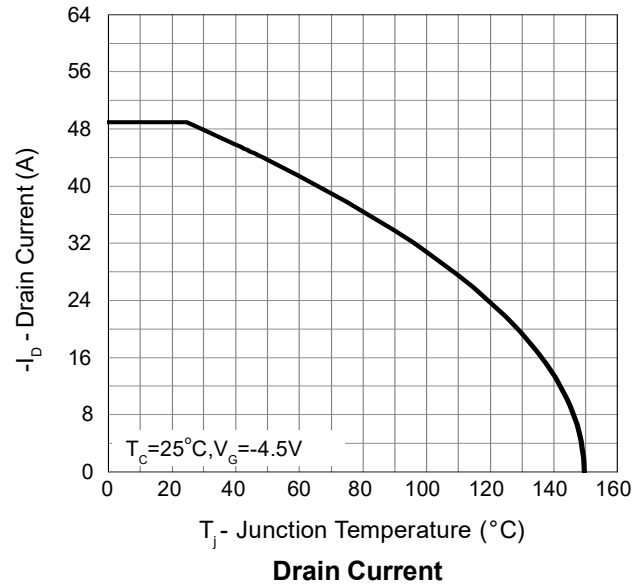
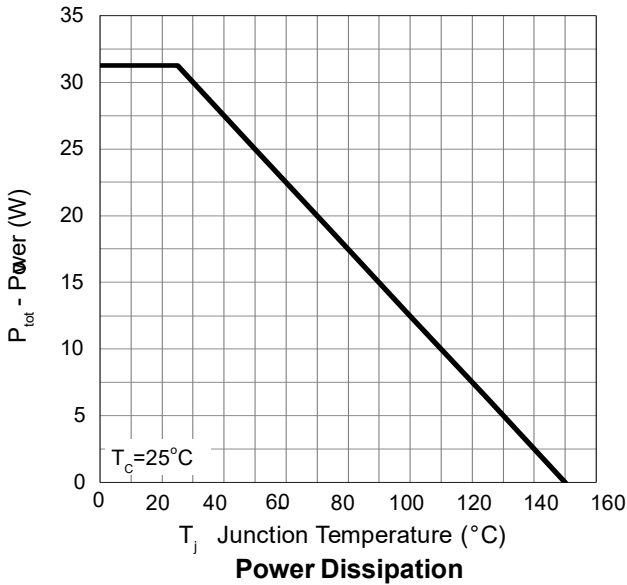
Drain-Source Diode Characteristics

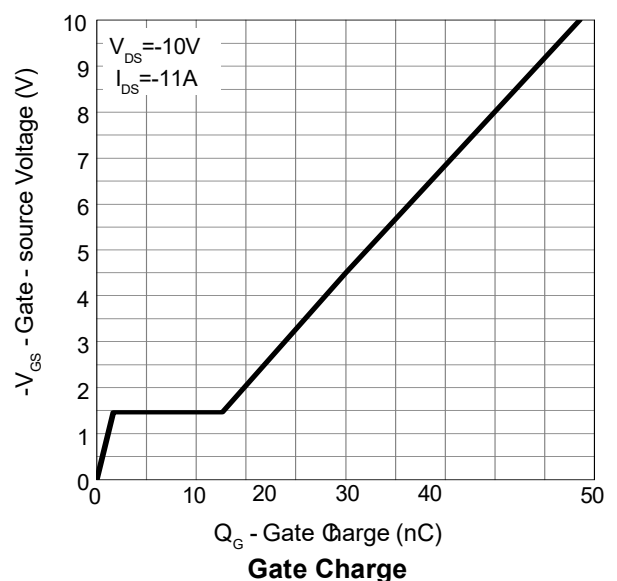
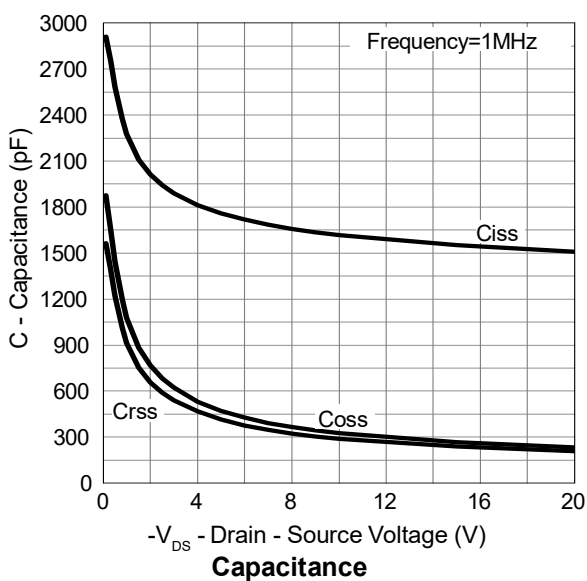
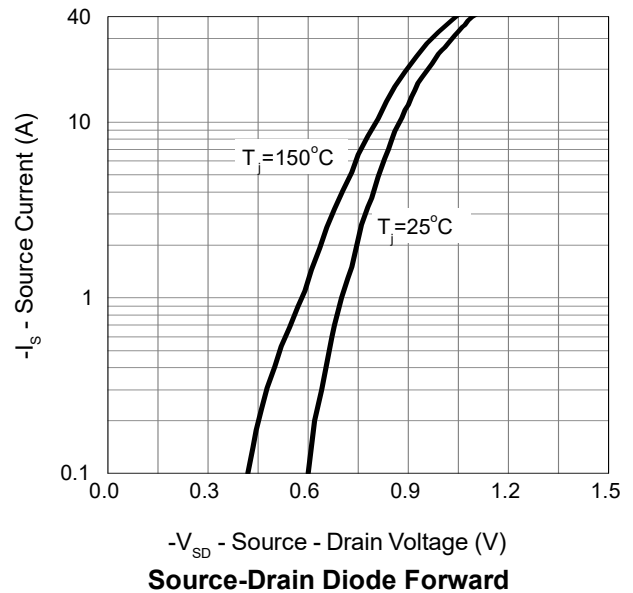
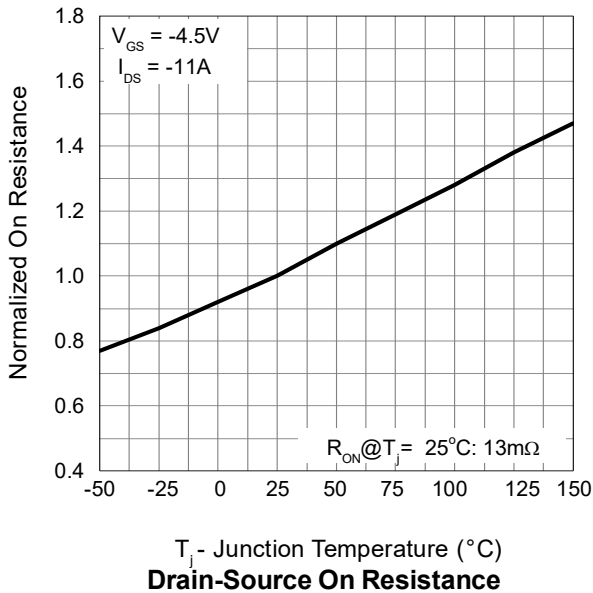
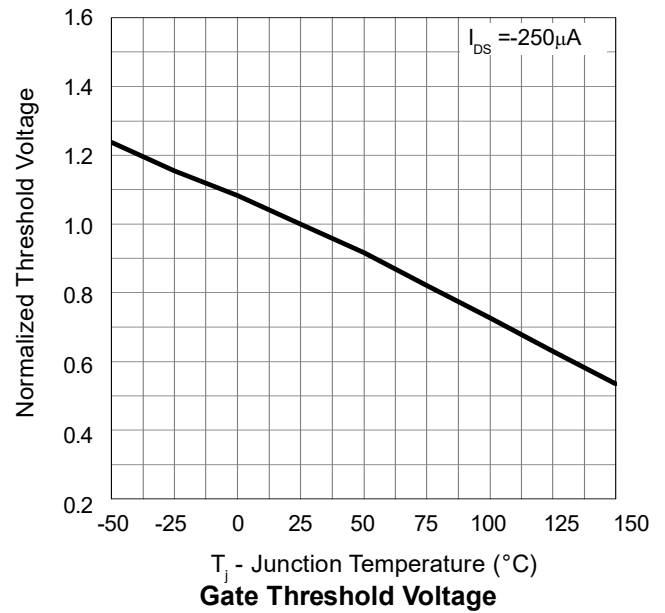
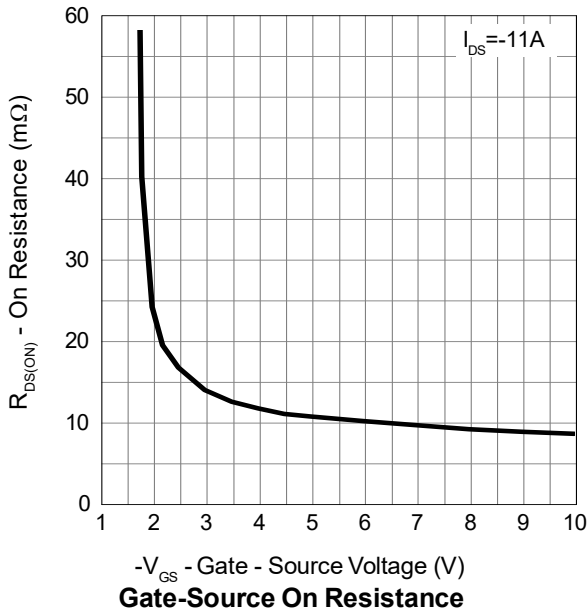
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I _S	T _C =25°C	---	---	-10	A
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25°C	---	-0.7	-1.0	V
Reverse Recovery Time	t _{rr}	I _F =-11A, di/dt=100A/μs, T _J =25°C	---	63	---	nS
Reverse Recovery Charge	Q _{rr}		---	54	---	nC

Note:

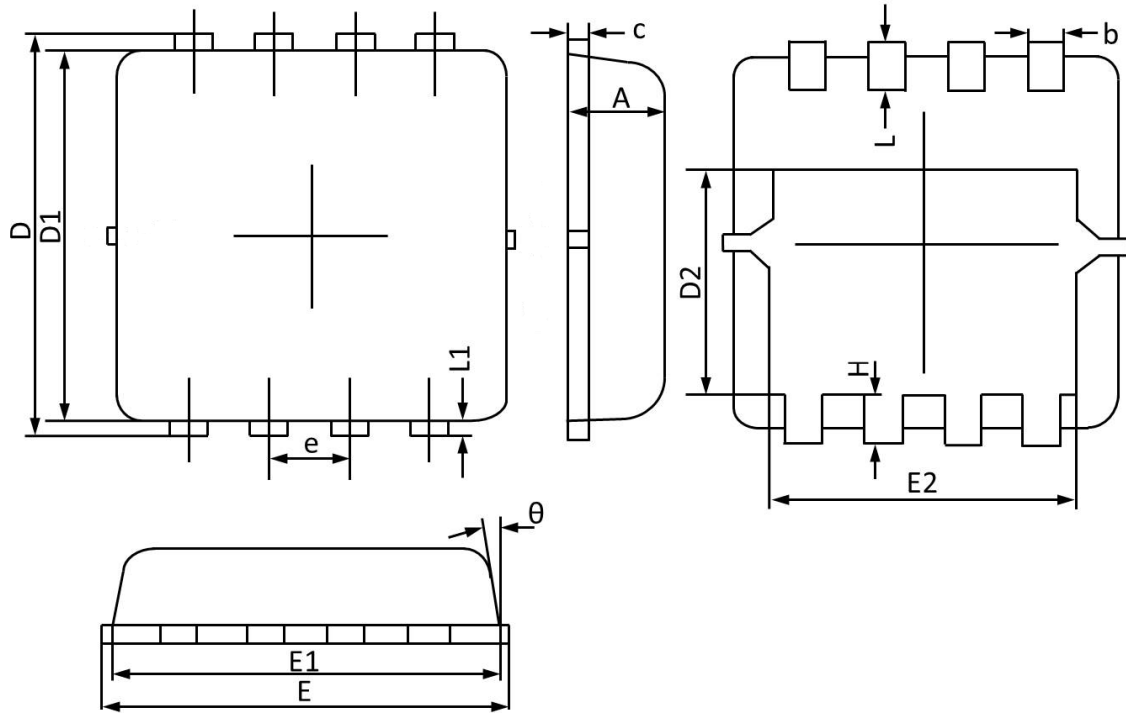
- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%
- 3.The power dissipation is limited by 150°C junction temperature

Typical Characteristics





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	theta	0°		14°