

Features

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

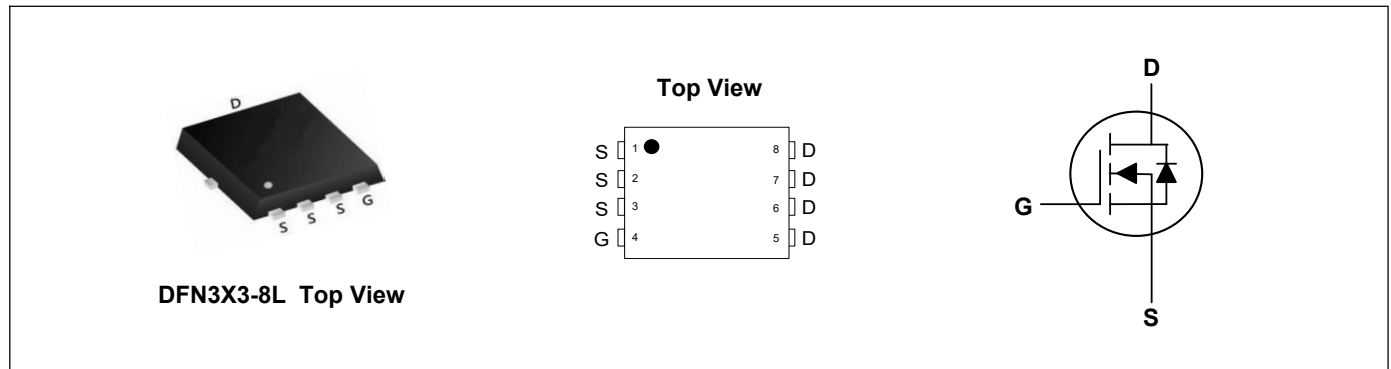
Product Summary



V_{DS}	30	V
I_D	65	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	6	m Ω
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	8.5	m Ω

Applications

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



Absolute Maximum Ratings($T_C=25^\circ C$, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	65	A
Continuous Drain Current ¹	$I_D@T_C=100^\circ C$	46	A
Pulsed Drain Current ²	I_{DM}	260	A
Single Pulse Avalanche Energy ³	EAS	150	mJ
Total Power Dissipation ⁴	P_D	45	W
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ C$
Operating Junction Temperature Range	T_J	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	2.8	$^\circ C/W$

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	30	---	---	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A	---	4.5	6	mΩ
		V _{GS} =4.5V, I _D =20A	---	6.5	8.5	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	1.0	1.5	2.2	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V, T _J =25°C	---	---	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =20A	30	---	---	S
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V, I _D =20A	---	38.4	---	nC
Gate-Source Charge	Q _{gs}		---	5.8	---	
Gate-Drain Charge	Q _{gd}		---	7.9	---	
Turn-On Delay Time	T _{d(on)}	V _{DD} =5V, R _G =6Ω, V _{GS} =10V, I _D =20A	---	7	---	ns
Rise Time	T _r		---	6	---	
Turn-Off Delay Time	T _{d(off)}		---	30	---	
Fall Time	T _f		---	8	---	
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	1784	---	pF
Output Capacitance	C _{oss}		---	266	---	
Reverse Transfer Capacitance	C _{rss}		---	212	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ²	I _S		---	---	65	A
Diode Forward Voltage ¹	V _{SD}	V _{GS} =0V, I _S =20A, T _J =25°C	---	0.85	1.2	V
Reverse Recovery Time	t _{rr}	I _F =20A, di/dt=100A/μs, T _J =25°C	---	---	47	nS
Reverse Recovery Charge	Q _{rr}		---	---	25	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 EAS data shows Max. rating. The test condition is V_{DD}=15V, V_{GS}=10V, L=0.5mH
4. The power dissipation is limited by 150°C junction temperature

Typical Characteristics

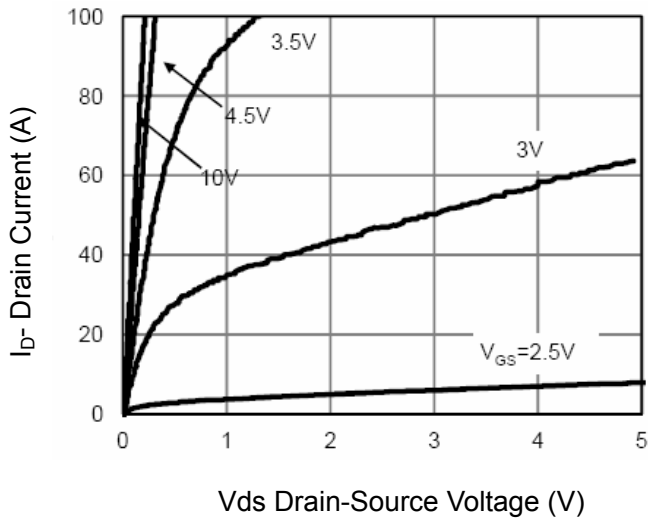


Figure 1 Output Characteristics

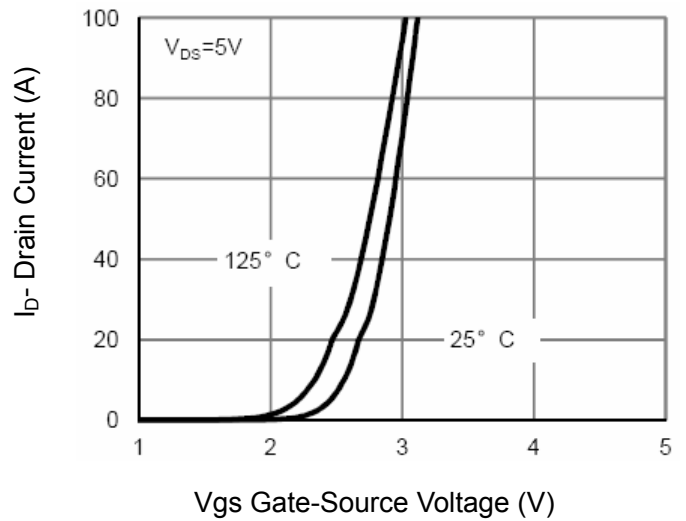


Figure 2 Transfer Characteristics

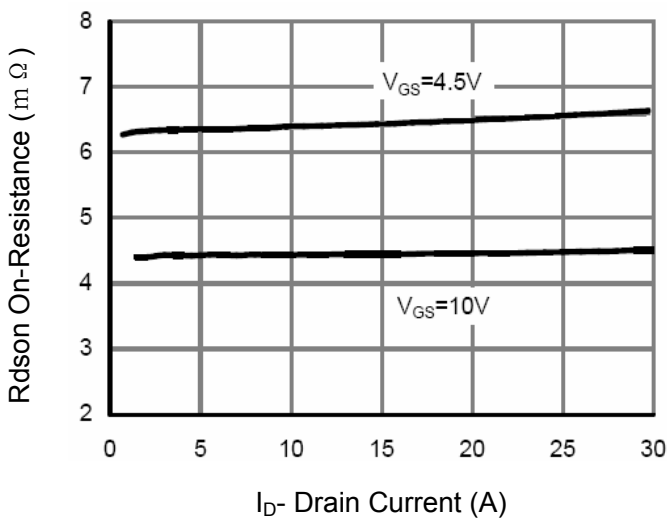


Figure 3 Rdson- Drain Current

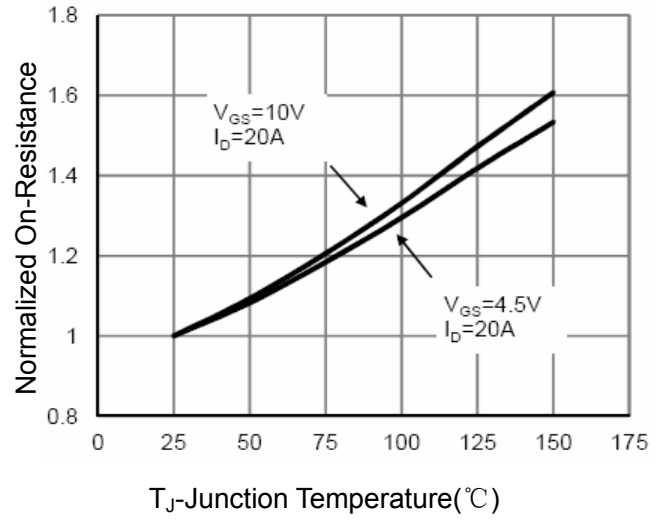


Figure 4 Rdson-Junction Temperature

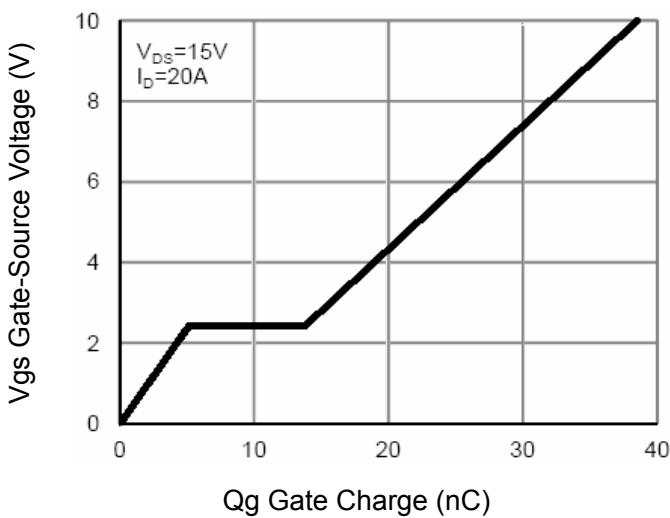


Figure 5 Gate Charge

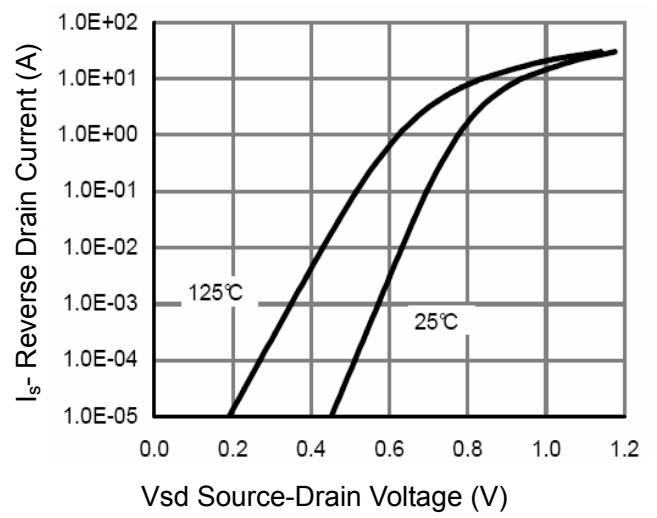
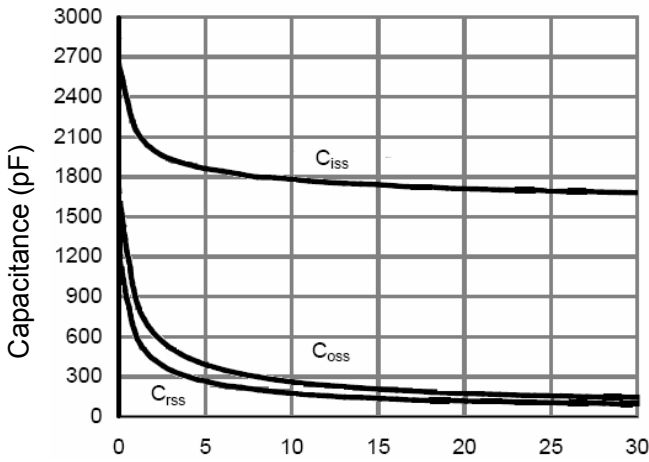
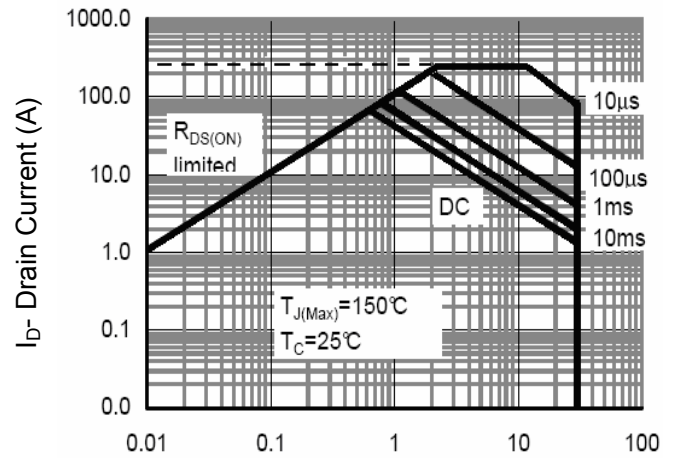


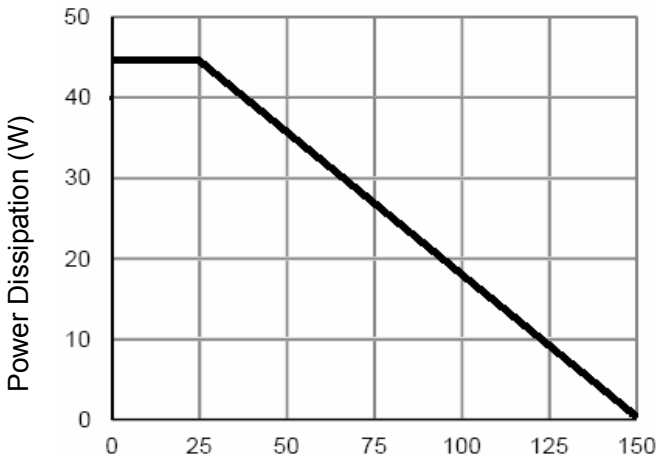
Figure 6 Source- Drain Diode Forward



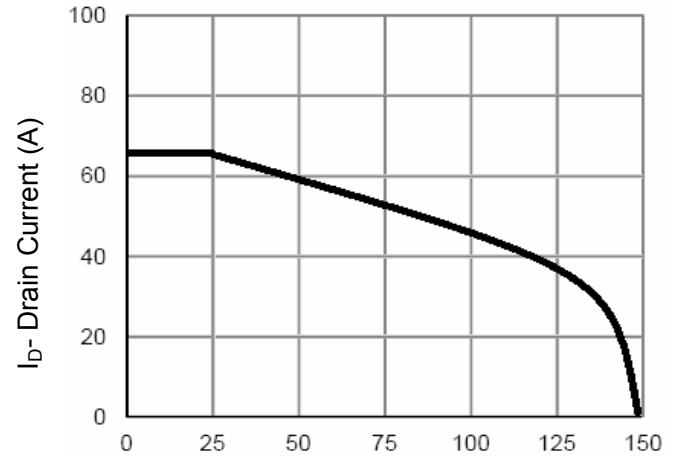
Vds Drain-Source Voltage (V)
Figure 7 Capacitance vs Vds



Vds Drain-Source Voltage (V)
Figure 8 Safe Operation Area



T_J-Junction Temperature(°C)
Figure 9 Power De-rating



T_J-Junction Temperature(°C)
Figure 10 Current De-rating

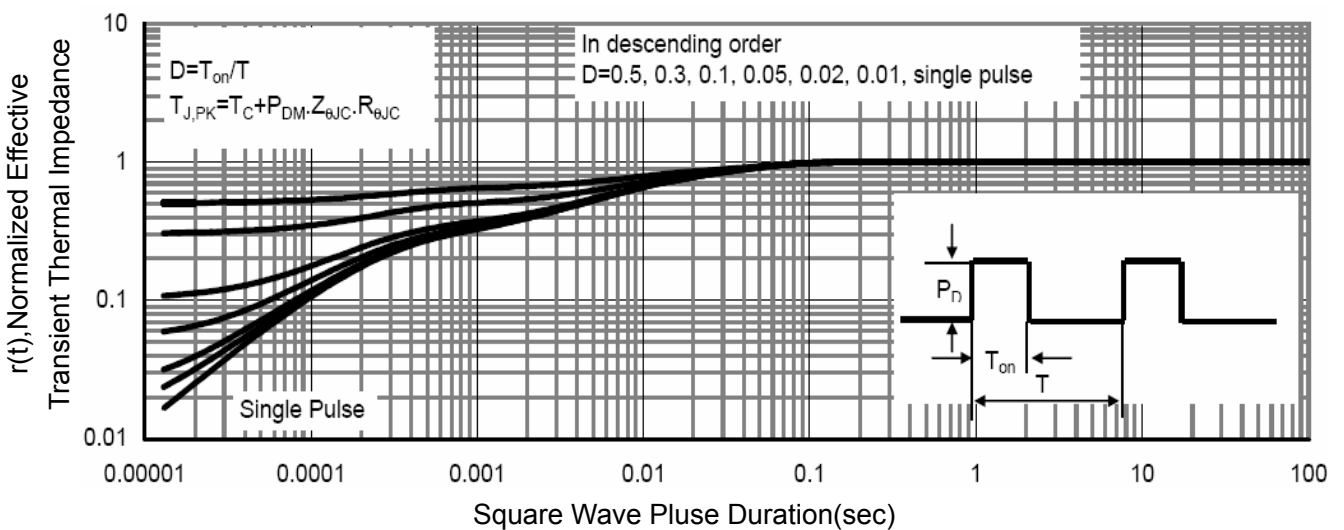
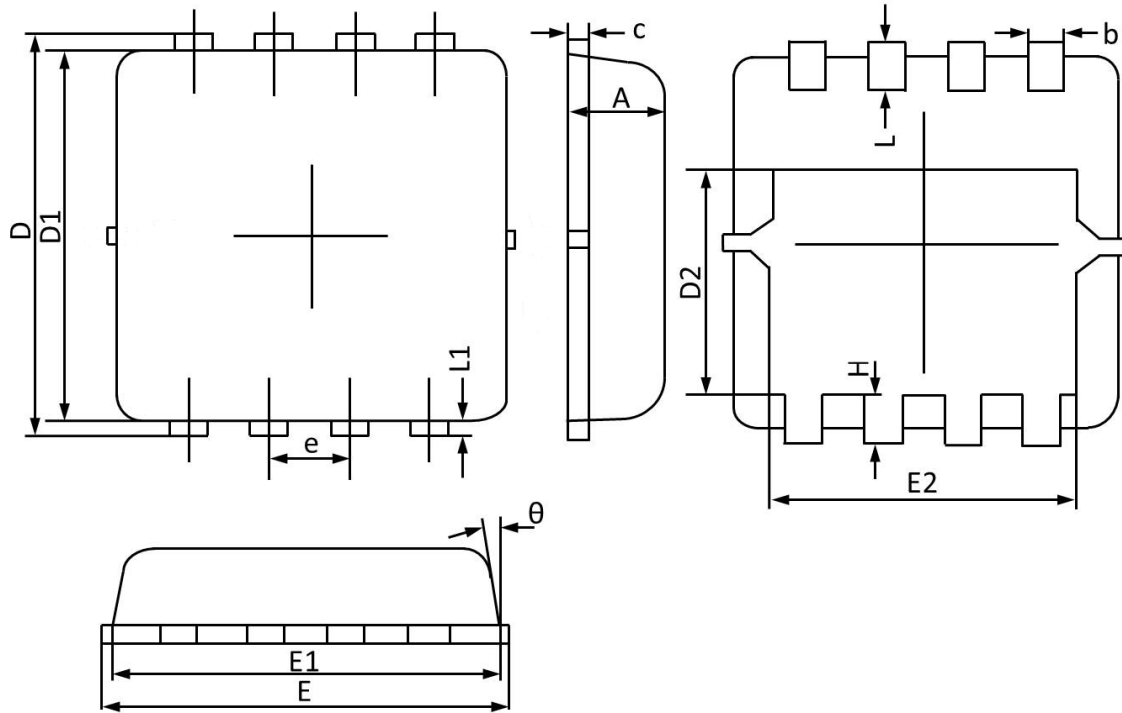


Figure 11 Normalized Maximum Transient Thermal Impedance

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°