

Features

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

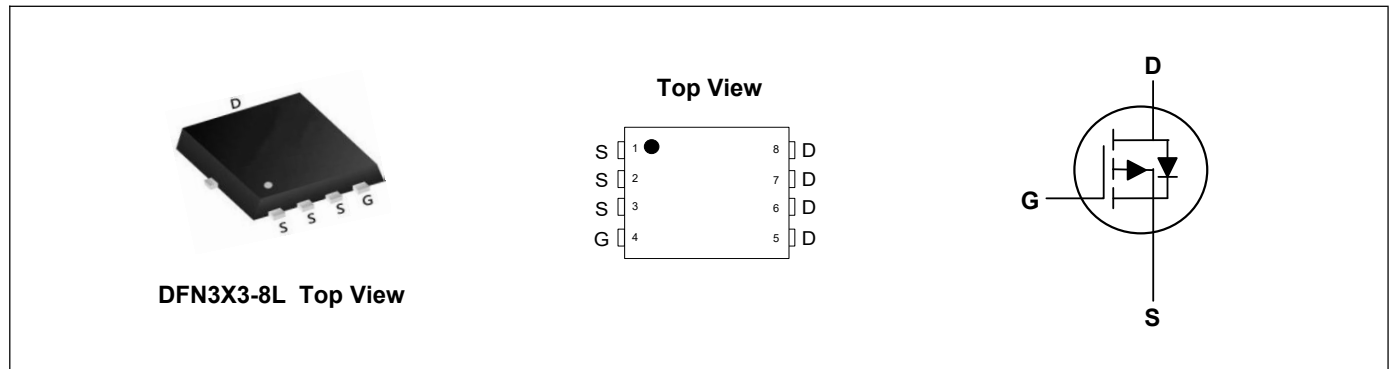
Applications

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

Product Summary



V_{DS}	-40	V
I_D	-28	A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	16	m Ω
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	21	m Ω



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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	$I_D@T_C=25^\circ\text{C}$	-28	A
Continuous Drain Current ¹	$I_D@T_C=100^\circ\text{C}$	-17.6	A
Pulsed Drain Current ²	I_{DM}	-84	A
Single Pulse Avalanche Energy ³	E_{AS}	125	mJ
Total Power Dissipation ⁴	$P_D@T_C=25^\circ\text{C}$	18	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	$R_{\theta JA}$	---	140	$^\circ\text{C/W}$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	7.1	$^\circ\text{C/W}$

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	-40	---	---	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-15A	---	12	16	mΩ
		V _{GS} =-4.5V, I _D =-10A	---	17	21	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250uA	-1.2	---	-2.5	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-40V, V _{GS} =0V	---	---	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
Forward Transconductance	g _{fs}	V _{DS} =-10V, I _D =-5A	---	18	---	S
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-4.5V, I _D =-10A	---	30	---	nC
Gate-Source Charge	Q _{gs}		---	9	---	
Gate-Drain Charge	Q _{gd}		---	15	---	
Turn-On Delay Time	T _{d(on)}	V _{DS} =-15V, V _{GS} =-10V, R _G =3Ω, I _D =-10A	---	10	---	ns
Rise Time	T _r		---	4	---	
Turn-Off Delay Time	T _{d(off)}		---	25	---	
Fall Time	T _f		---	2.3	---	
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz	---	2720	---	pF
Output Capacitance	C _{oss}		---	185	---	
Reverse Transfer Capacitance	C _{rss}		---	135	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I _S		---	---	-28	A
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _S =-10A, T _J =25°C	---	---	-1.3	V

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=0.1mH

Typical Characteristics

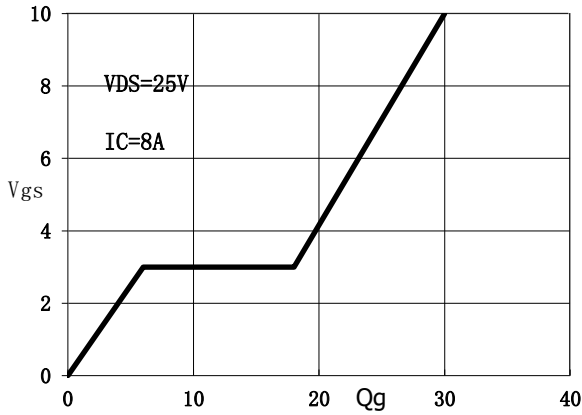


Fig.1 Gate-Charge Characteristics

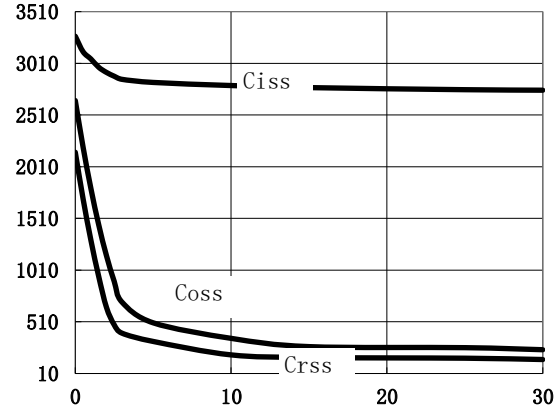


Fig.2 Capacitance Characteristics

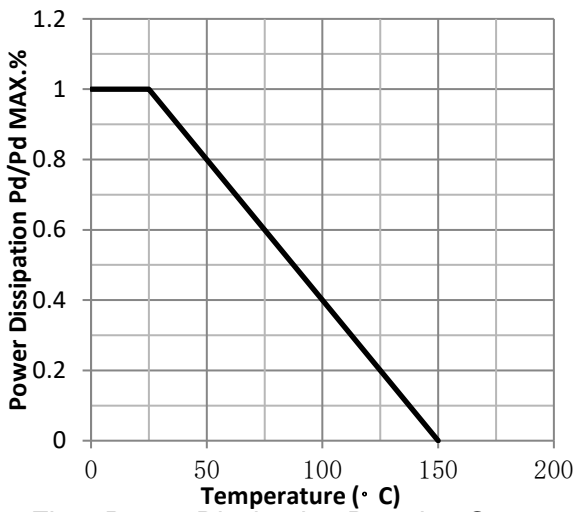


Fig.3 Power Dissipation Derating Curve

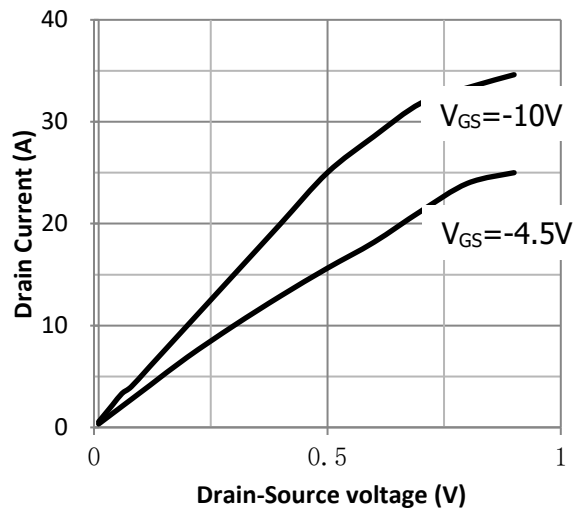


Fig.4 Typical output Characteristics

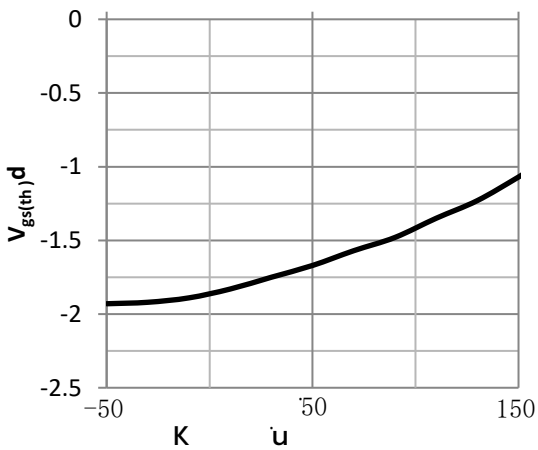


Fig.5 Threshold Voltage V.S Junction Temperature

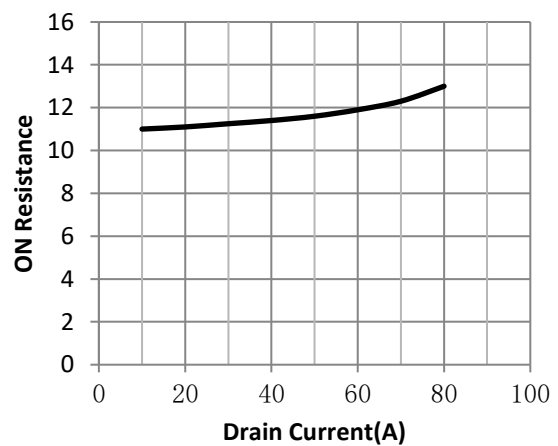


Fig.6 Resistance V.S Drain Current

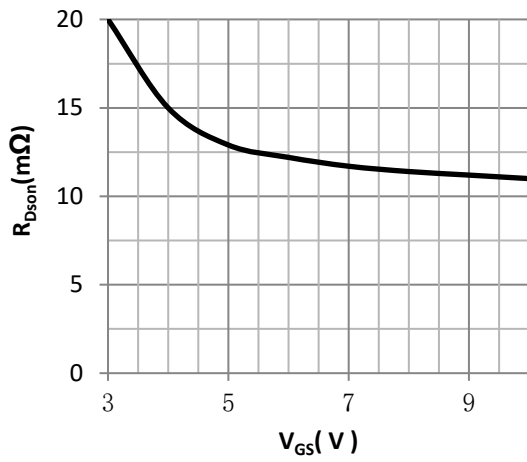


Fig.7 On-Resistance VS Gate Source Voltage

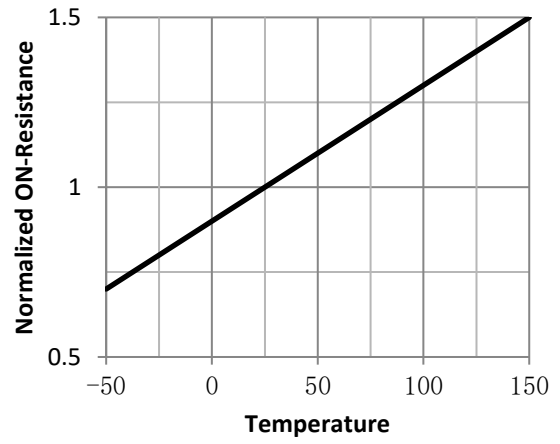
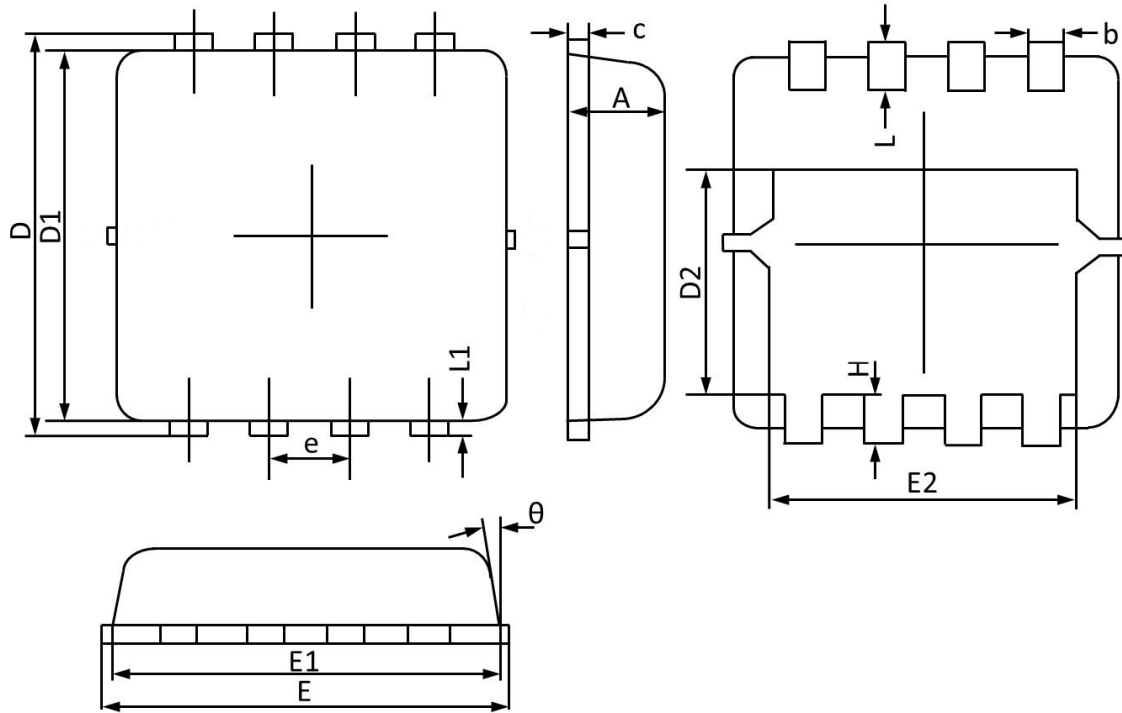


Fig.8 On-Resistance V.S Junction Temperature

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°