

Features

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

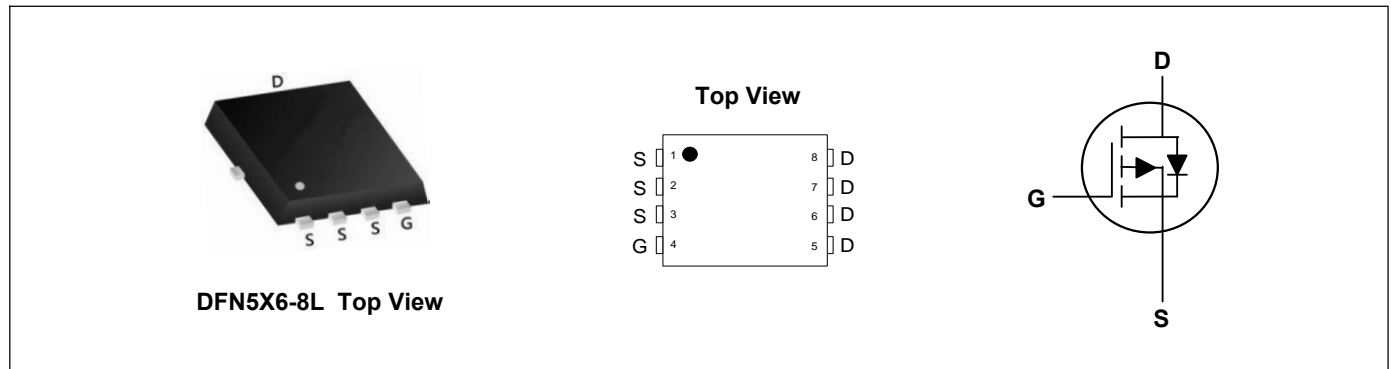
Applications

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

Product Summary



V_{DS}	-30	V
I_D	-100	A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	3.3	m Ω
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	5	m Ω



Absolute Maximum Ratings ($T_C=25^\circ\text{C}$, 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	$I_D@T_C=25^\circ\text{C}$	-100	A
Continuous Drain Current ¹	$I_D@T_C=100^\circ\text{C}$	-63.2	A
Pulsed Drain Current ²	I_{DM}	-400	A
Single Pulse Avalanche Energy ³	E_{AS}	320	mJ
Avalanche Current	I_{AS}	80	A
Total Power Dissipation ⁴	$P_D@T_C=25^\circ\text{C}$	138	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	$R_{\theta JA}$	---	62	$^\circ\text{C/W}$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	0.9	$^\circ\text{C/W}$

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	-30	---	---	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-30A	---	2.6	3.3	mΩ
		V _{GS} =-4.5V, I _D =-20A	---	3.8	5	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250uA	-1.2	-1.6	-2.2	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-30V, 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 =-3A	---	20	---	S
Total Gate Charge	Q _g	V _{DS} =-24V, V _{GS} =-10V, I _D =-10A	---	145	---	nC
Gate-Source Charge	Q _{gs}		---	22	---	
Gate-Drain Charge	Q _{gd}		---	32	---	
Turn-On Delay Time	T _{d(on)}	V _{DD} =-15V, V _{GS} =-10V, R _G =5Ω, I _D =-10A	---	18	---	ns
Rise Time	T _r		---	60	---	
Turn-Off Delay Time	T _{d(off)}		---	195	---	
Fall Time	T _f		---	113	---	
Input Capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, f=1MHz	---	7900	---	pF
Output Capacitance	C _{oss}		---	980	---	
Reverse Transfer Capacitance	C _{rss}		---	500	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I _S	V _G =V _D =0V, Force Current	---	---	-100	A
Pulsed Source Current ^{2,4}	I _{SM}		---	---	-200	A
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25°C	---	---	-1	V
Reverse Recovery Time	t _{rr}	I _F =-20A, di/dt=100A/μs, T _J =25°C	---	52	---	nS
Reverse Recovery Charge	Q _{rr}		---	53	---	nC

Note:

- The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%
- The EAS data shows Max. rating. The test condition is V_{DD}=-25V, V_{GS}=-10V, L=0.1mH
- The power dissipation is limited by 150°C junction temperature

Typical Characteristics

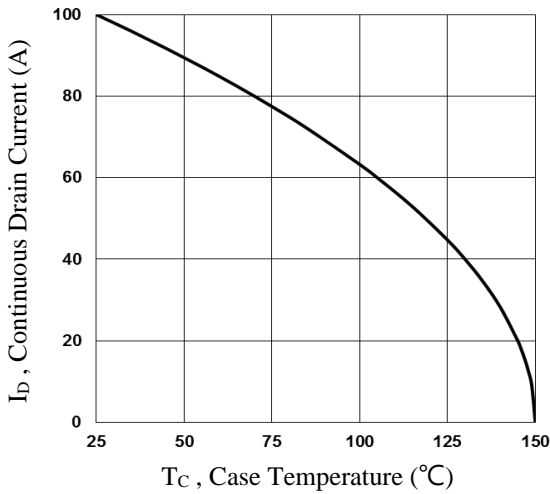


Fig.1 Continuous Drain Current vs. T_c

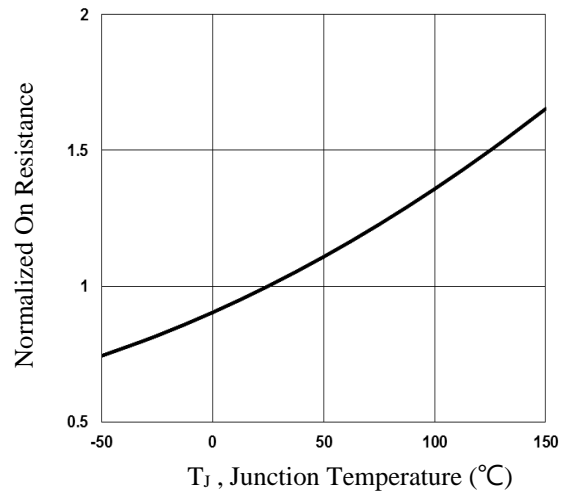


Fig.2 Normalized $R_{DS(on)}$ vs. T_j

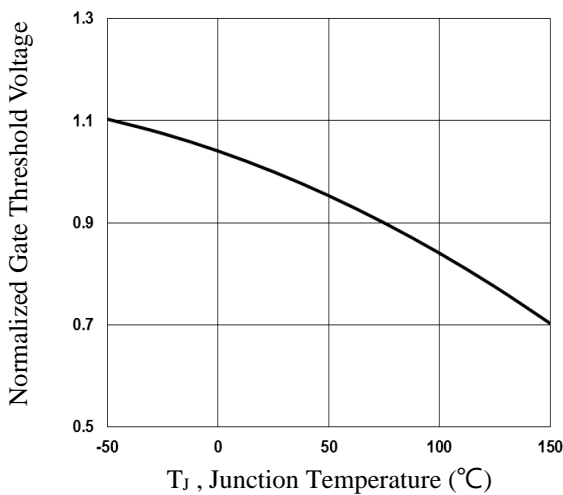


Fig.3 Normalized V_{th} vs. T_j

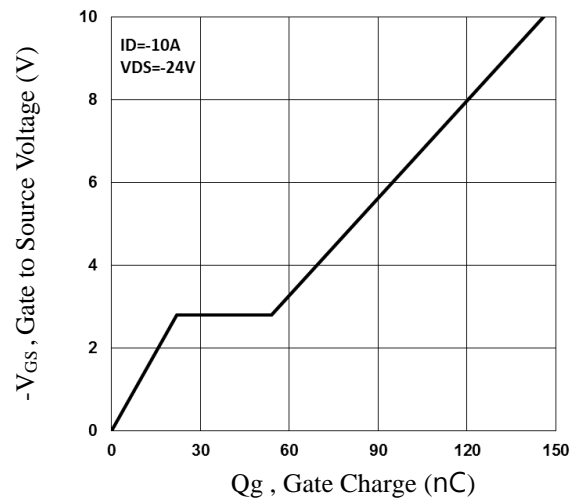


Fig.4 Gate Charge Waveform

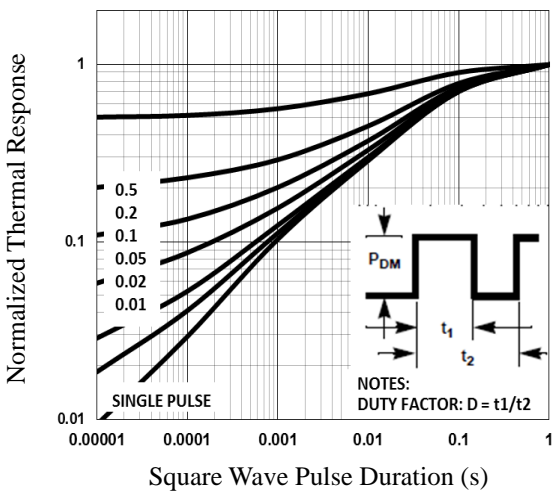


Fig.5 Normalized Transient Impedance

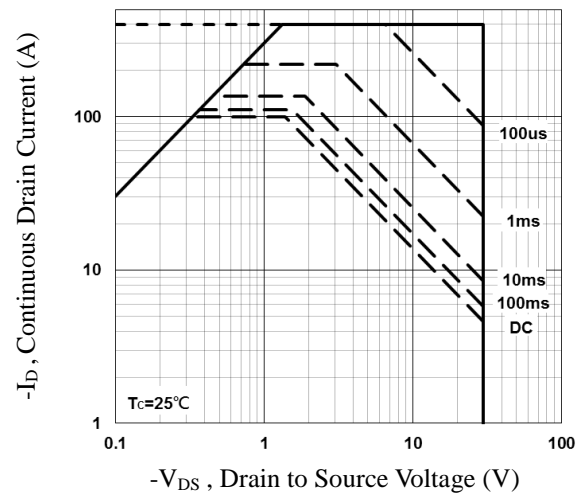


Fig.6 Maximum Safe Operation Area

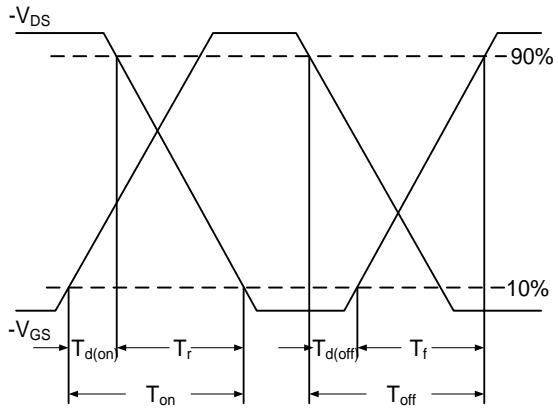


Fig.7 Switching Time Waveform

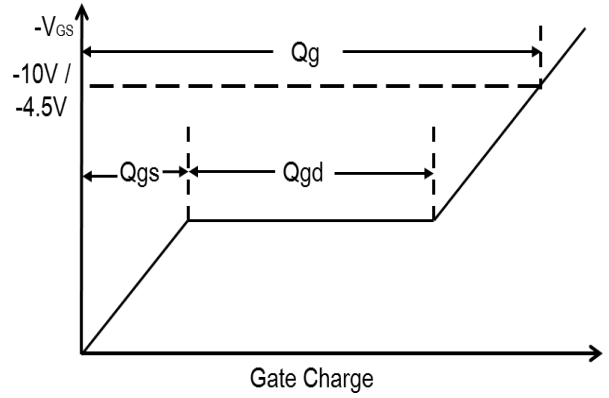
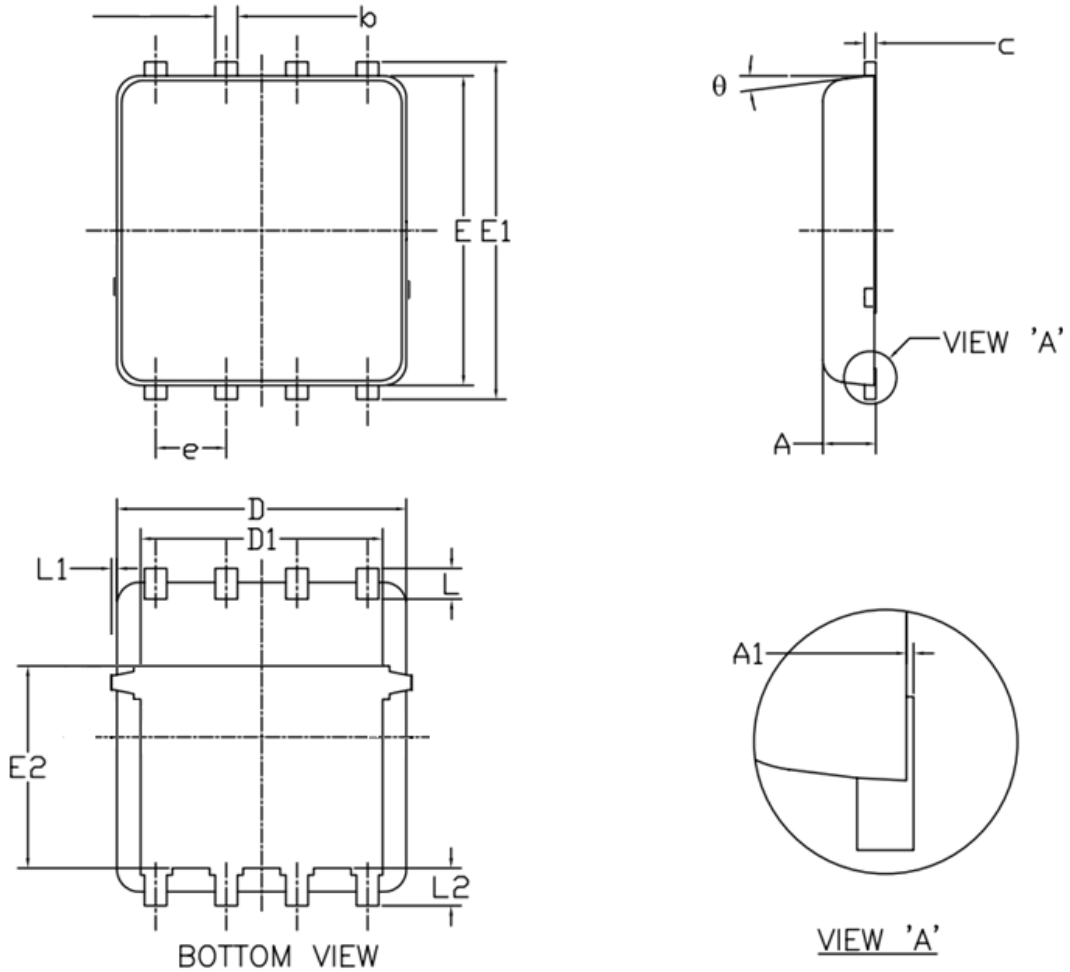


Fig.8 Gate Charge Waveform

DFN5X6-8L Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.90	1.00	1.20	E1	5.90	6.10	6.35
A1	0.00	--	0.05	E2	3.38	3.58	3.92
b	0.30	0.40	0.51	e	1.27 BSC		
c	0.20	0.25	0.33	L	0.51	0.61	0.71
D	4.80	4.90	5.40	L1	--	--	0.15
D1	3.61	4.00	4.25	L2	0.41	0.51	0.61
E	5.65	5.80	6.06	θ	0°	--	12°