

## Features

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

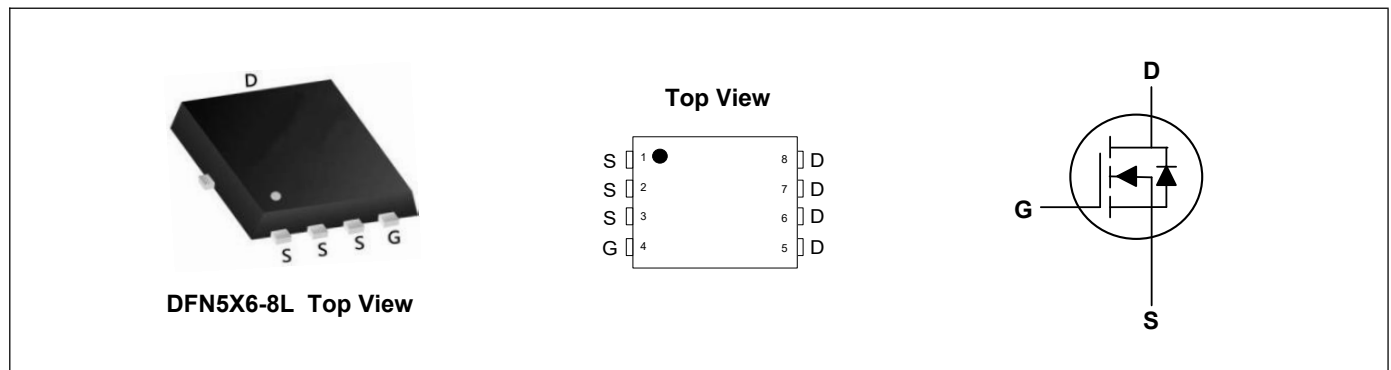
## Applications

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

## Product Summary



$V_{DS}$	30	V
$I_D$	223	A
$R_{DS(ON)}$ (at $V_{GS}=10V$ )	0.85	m $\Omega$
$R_{DS(ON)}$ (at $V_{GS}=4.5V$ )	1.4	m $\Omega$



## 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	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D$	223	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	450	A
Single Pulse Avalanche Energy <sup>3</sup>	$E_{AS}$	400	mJ
Avalanche Current	$I_{AS}$	40	A
Total Power Dissipation <sup>4</sup>	$P_D$	100	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 <sup>1</sup>	$R_{\theta JA}$	---	62	$^\circ\text{C/W}$
Thermal Resistance Junction-Case <sup>1</sup>	$R_{\theta JC}$	---	1.25	$^\circ\text{C/W}$

**Electrical Characteristics (T<sub>J</sub>=25°C, unless otherwise noted)**

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	30	---	---	V
Static Drain-Source On-Resistance <sup>2</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =100A	---	0.75	0.85	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =100A	---	1.05	1.4	mΩ
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	1	1.5	2	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	---	---	1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	---	---	±100	nA
Gate Resistance	R <sub>g</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =0V, f=1MHz	---	1.8	---	Ω
Total Gate Charge	Q <sub>g</sub>	V <sub>DD</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =100A	---	125	---	nC
Gate-Source Charge	Q <sub>gs</sub>		---	17	---	
Gate-Drain Charge	Q <sub>gd</sub>		---	16	---	
Turn-On Delay Time	T <sub>d(on)</sub>	V <sub>DD</sub> =15V, V <sub>GS</sub> =10V, R <sub>G</sub> =1.6Ω, I <sub>D</sub> =100A	---	12	---	ns
Rise Time	T <sub>r</sub>		---	9	---	
Turn-Off Delay Time	T <sub>d(off)</sub>		---	50	---	
Fall Time	T <sub>f</sub>		---	9	---	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz	---	7220	---	pF
Output Capacitance	C <sub>oss</sub>		---	2100	---	
Reverse Transfer Capacitance	C <sub>rss</sub>		---	450	---	

**Drain-Source Diode Characteristics**

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage <sup>2</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =100A, T <sub>J</sub> =25°C	---	0.8	1.1	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =100A, V <sub>R</sub> =15V di/dt=100A/μs, T <sub>J</sub> =25°C	---	40	---	nS
Reverse Recovery Charge	Q <sub>rr</sub>		---	125	---	nC

**Note:**

- 1.The data tested by surface mounted on a 1 inch<sup>2</sup> 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<sub>DD</sub>=15V, R<sub>G</sub>=25Ω, I<sub>AS</sub>=40A
- 4.The power dissipation is limited by 150°C junction temperature

**Typical Characteristics**

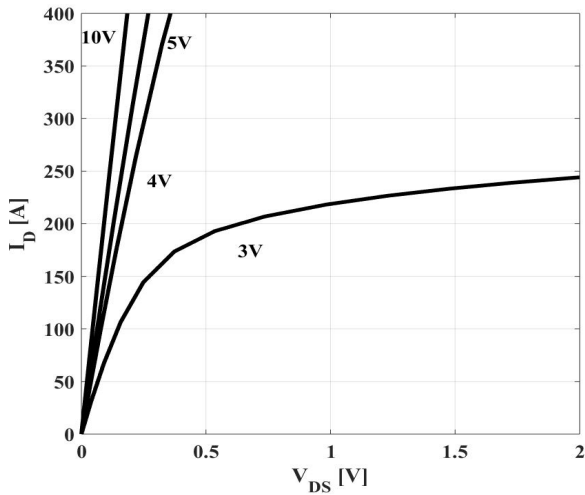


Figure 1: Typ. Output Characteristics

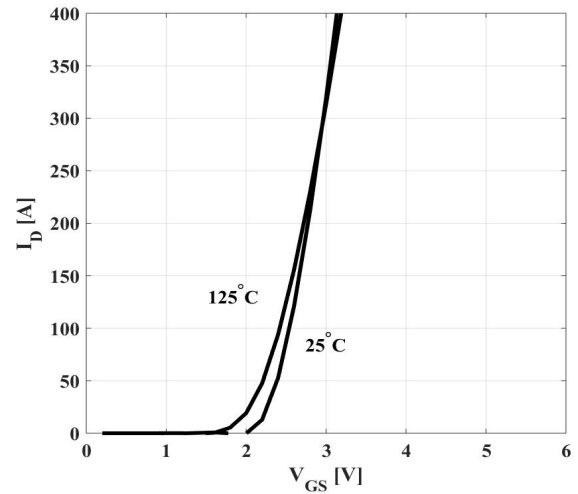


Figure 2: Typ. Transfer Characteristics

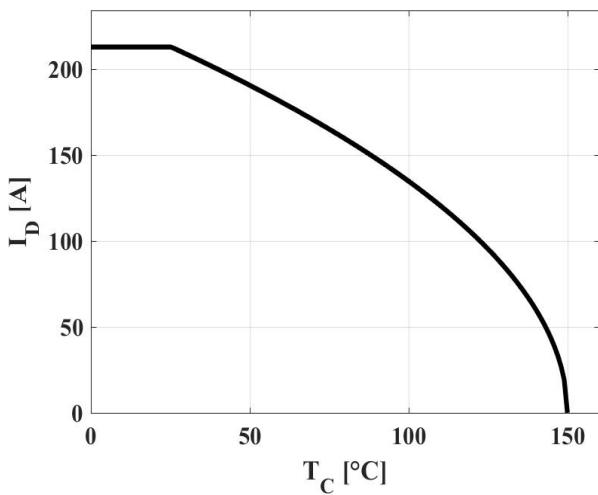


Figure 3: Drain Current

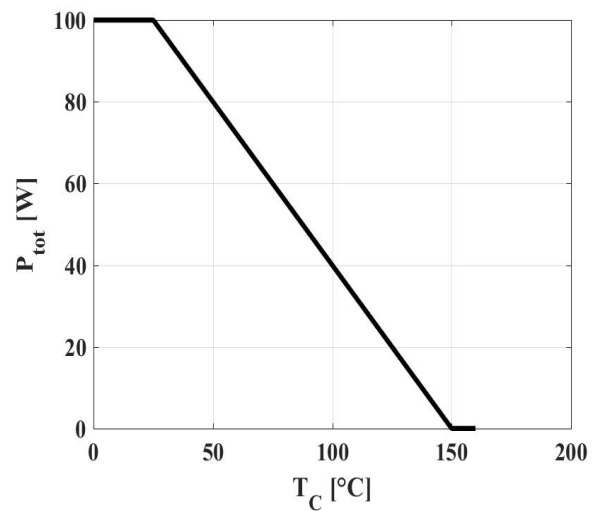


Figure 4: Power Dissipation

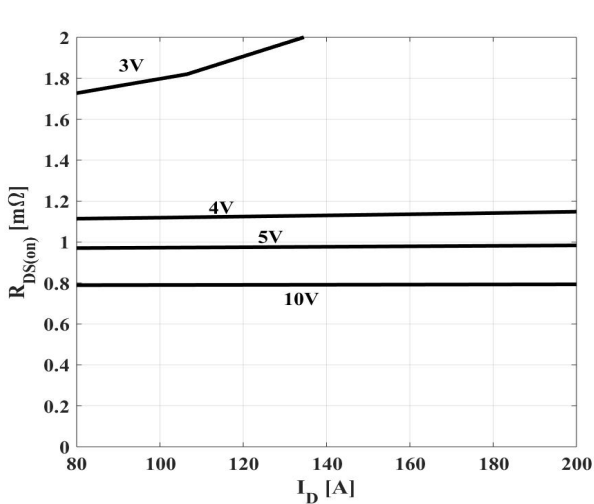


Figure 5: Typ. Drain-Source On-State Resistance

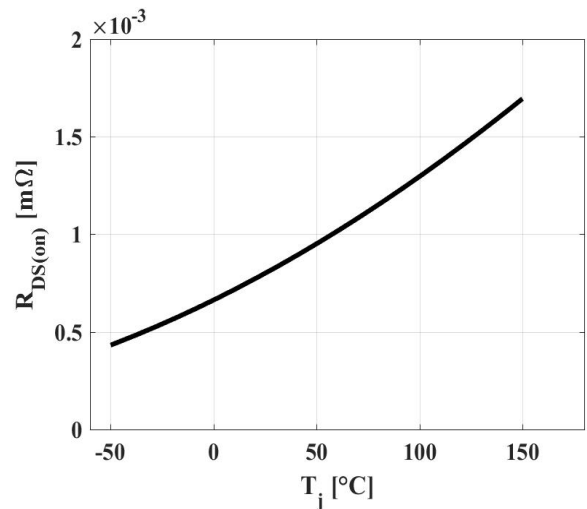


Figure 6: Typ. Drain-Source On-State Resistance

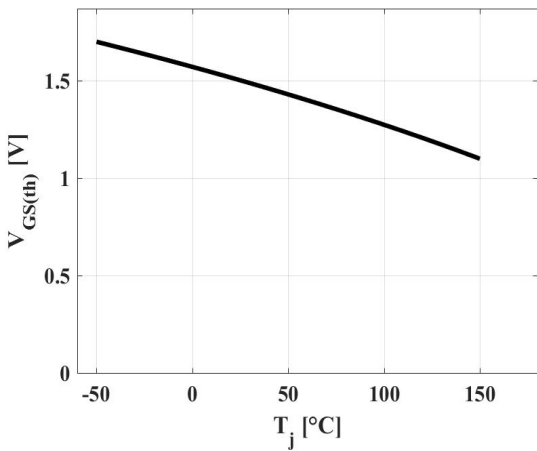


Figure 7: Typ. Gate Threshold Voltage

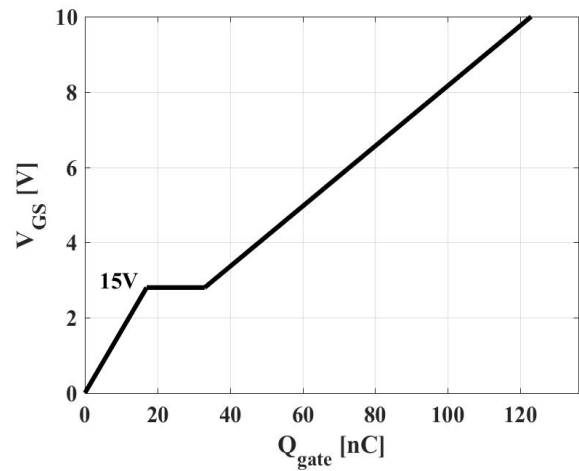


Figure 8: Typ. Gate Charge

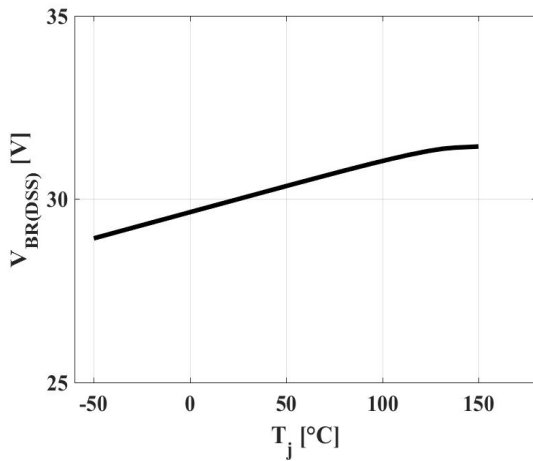


Figure 9: Drain-Source Breakdown Voltage

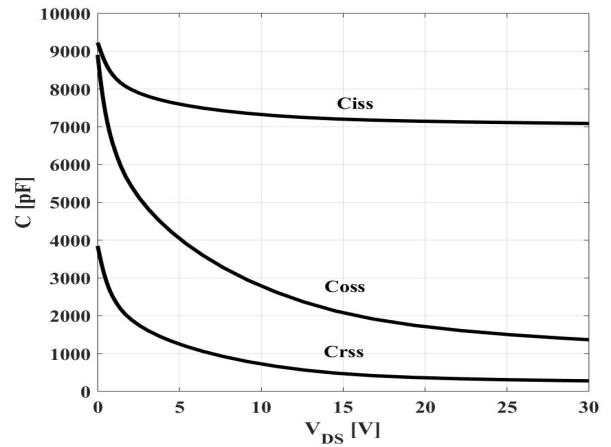


Figure 10: Typ. Capacitances

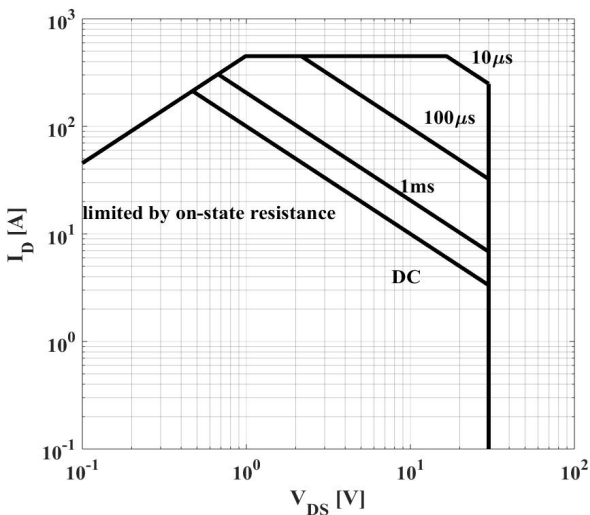


Figure 11: Safe Operating Area

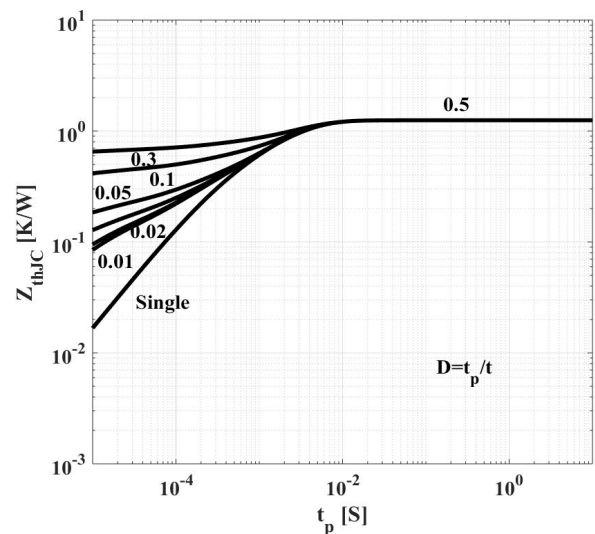
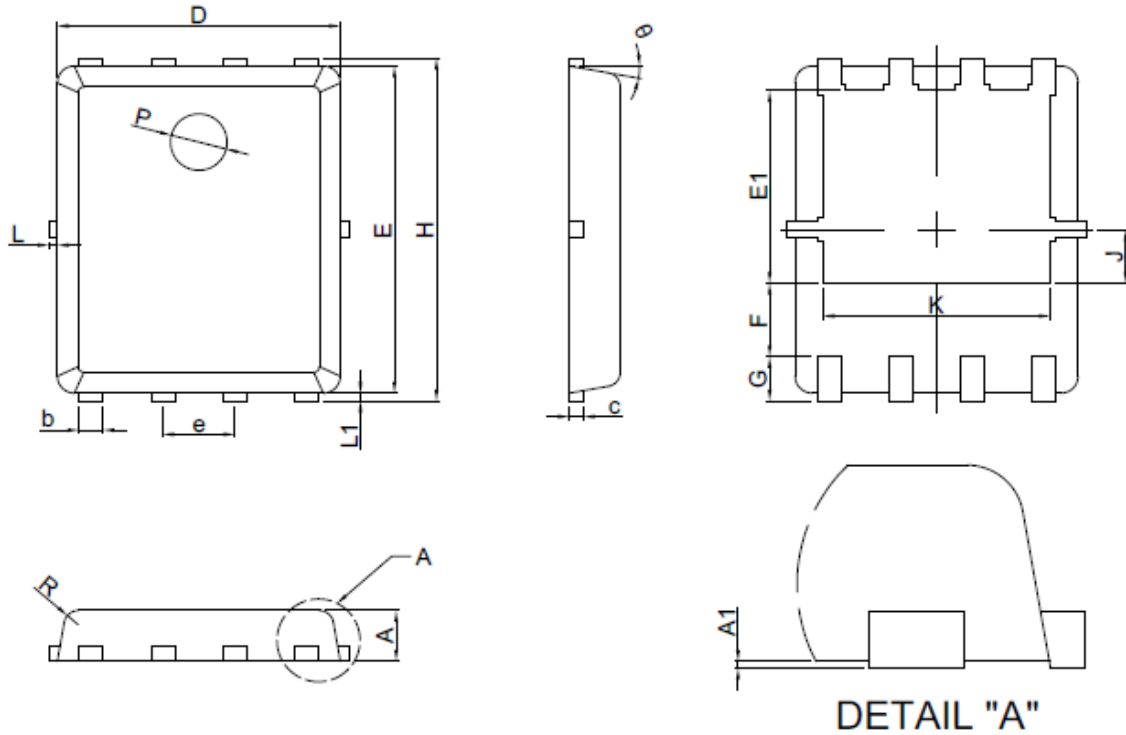


Figure 12: Max. Transient Thermal Impedance

**DFN5X6-8L Package Outline Dimensions**



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.80	0.95	1.10	G	0.60 REF		
A1	0.00		0.05	H	5.90	6.05	6.20
b	0.35	0.42	0.51	J	0.95 BSC		
c	0.254 REF			K	4.00 REF		
D	4.90	5.00	5.10	L	0.00		0.15
E	5.70	5.80	5.90	L1	0.10	0.15	0.20
e	1.27 BSC			P	1.00 REF		
E1	3.40 REF			R	0.25 REF		
F	1.40 REF			φ	6°		14°