

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_b
80V	4.5mΩ@10V	100A

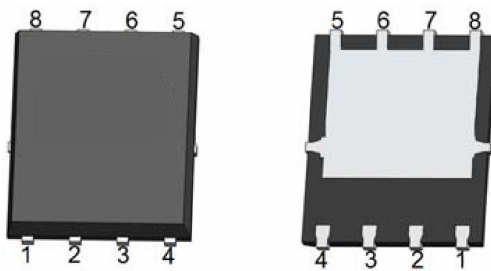
Feature

- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{ds(on)}$

Application

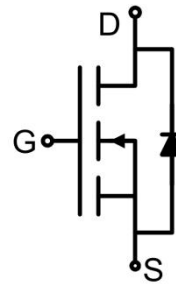
- Battery protection
- Load switch
- Uninterruptible power supply

Package

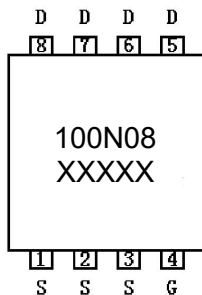


DFN5X6-8L

Circuit diagram



Marking



Absolute maximum ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	80	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	100	A
Drain Current-Continuous(T _C =100°C)	I _D (100°C)	63	A
Pulsed Drain Current ¹⁾	I _{DM}	400	A
Power Dissipation ²⁾	P _D	152	W
Thermal Resistance,Junction-to-Ambient ⁴⁾	R _{θJA}	40.7	°C/W
Thermal Resistance,Junction-to-Case	R _{θJC}	0.819	°C/W
Single pulse avalanche energy ³⁾	E _{AS}	600	mJ
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	80			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =80V,V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	3.0	4.0	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		3.6	4.5	mΩ
Forward transconductance	g _{FS}	V _{DS} =10V, I _D =50A		71.5		S
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =40V,V _{GS} =0V,f =1MHz		5666		pF
Output Capacitance	C _{oss}			860		
Reverse Transfer Capacitance	C _{rss}			7.5		
Total Gate Charge	Q _g	V _{DS} = 40V,V _{GS} =10V,I _D =50A		73		nC
Gate-Source Charge	Q _{gs}			25		
Gate-Drain Charge	Q _{gd}			12		
Turn-on delay time	t _{d(on)}	V _{DD} =40V,V _{GS} =10V, I _D =50A,R _{GEN} =3Ω		27		nS
Turn-on rise time	t _r			32		
Turn-off delay time	t _{d(off)}			54		
Turn-off fall time	t _f			17		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				100	A
Diode Forward voltage	V _{DS}	V _{GS} =0V, I _S =20A			1.2	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F =50A		44		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs		50		nC

Notes:

- 1) Repetitive rating; pulse width limited by max. junction temperature.
- 2) P_d is based on max. junction temperature, using junction-case thermal resistance.
- 3) EAS condition : T_J=25°C,V_{DD}=50V,V_{GS}=10V,L=3mH I_{as}=20A
- 4) The value of R_{θJA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C.

Typical Characteristics

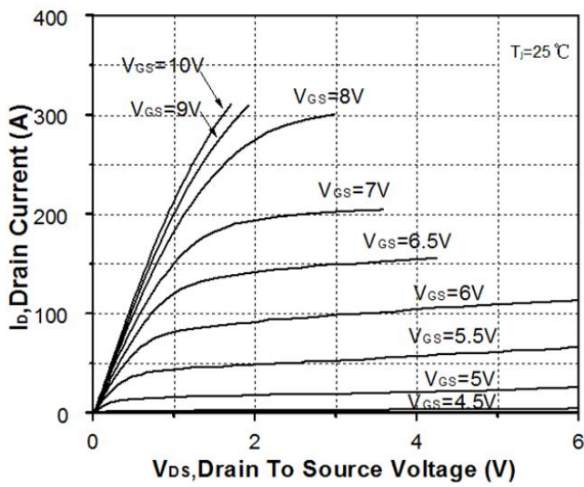


Figure1. Output Characteristics

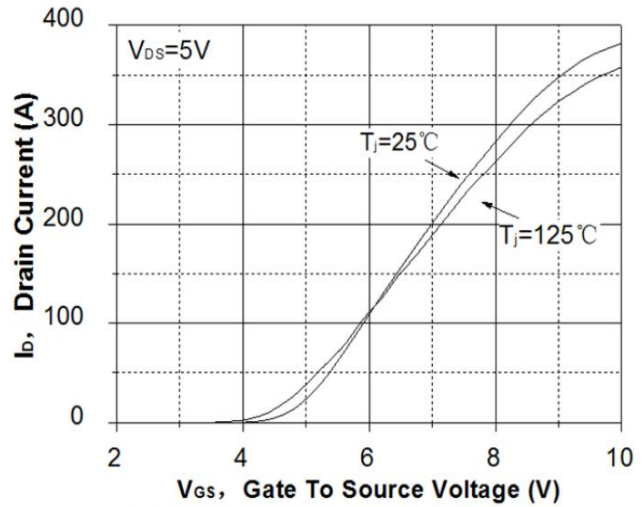


Figure2. Transfer Characteristics

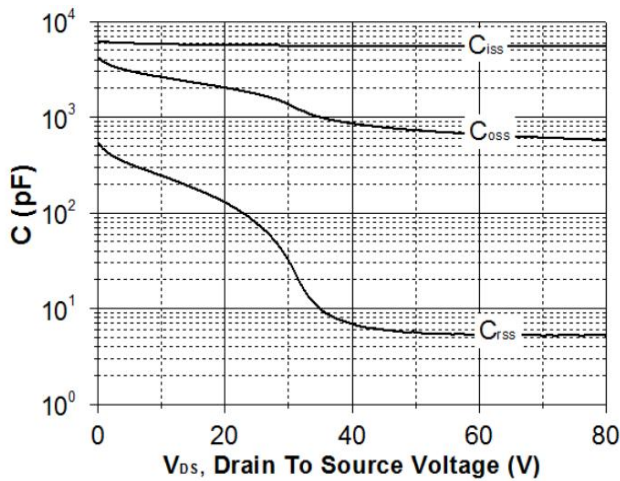


Figure3. Capacitance Characteristics

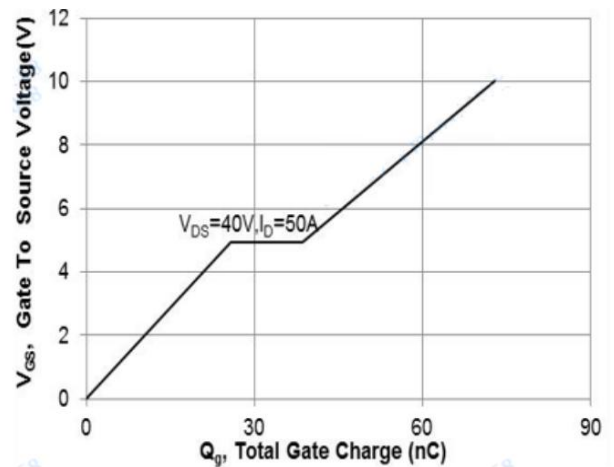


Figure4. Gate Charge

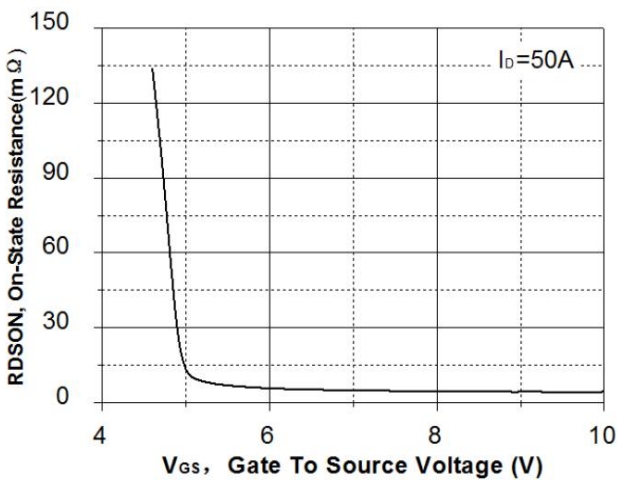


Figure5. On-Resistance vs. Gate to Source Voltage

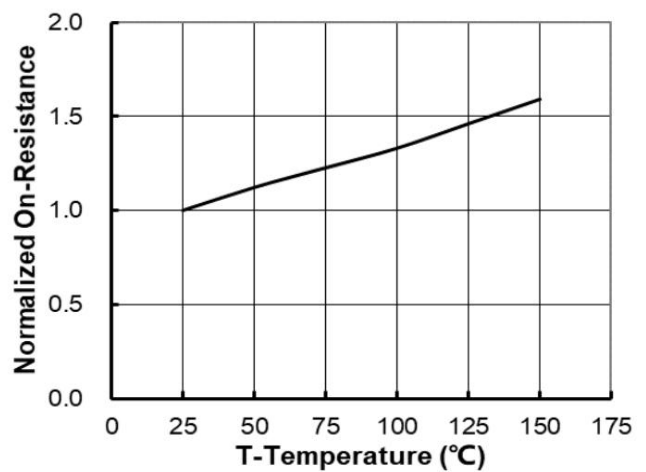


Figure6. Normalized On-Resistance

Typical Characteristics

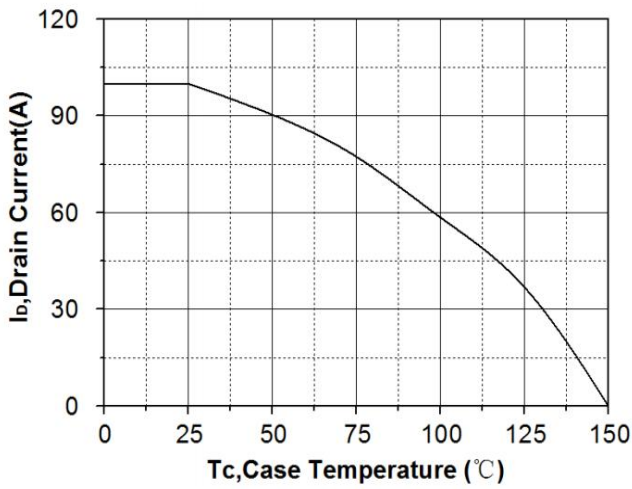


Figure7. Drain current

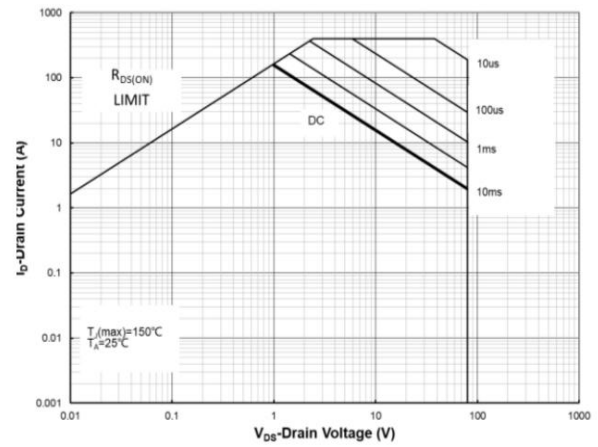


Figure8. Safe Operation Area

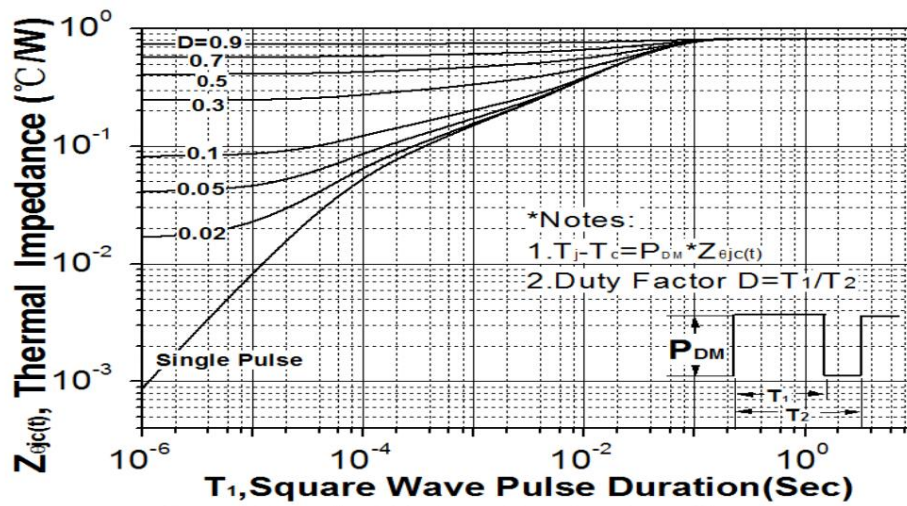
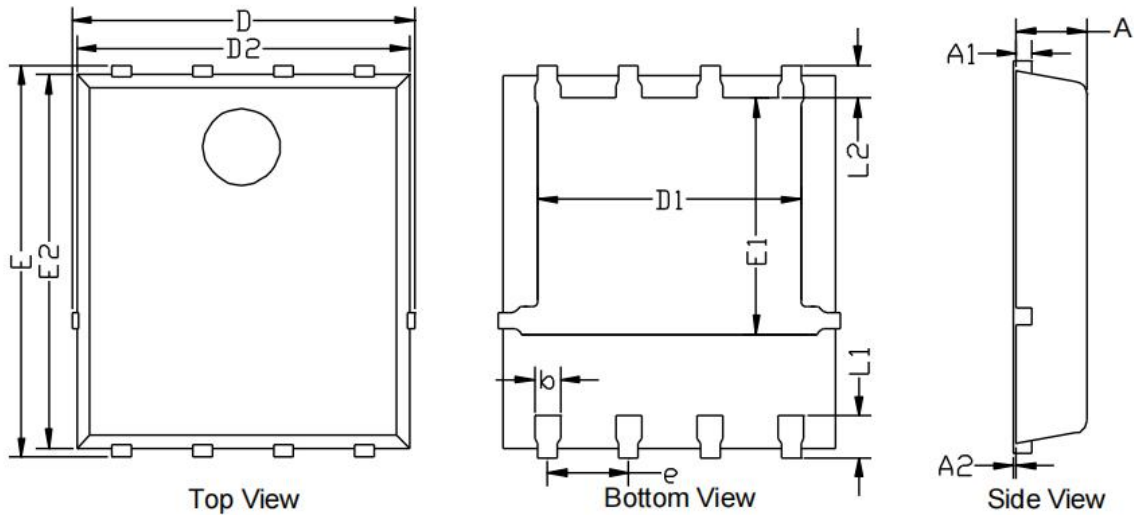


Figure9. Normalized Maximum Transient thermal impedance

DFN5X6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.000	1.200	0.039	0.047
A1	0.254BSC.		0.010BSC.	
A2	0.000	0.100		0.004
D	5.150	5.550	0.202	0.219
E	5.950	6.350	0.234	0.250
D1	3.920	4.320	0.154	0.170
E1	3.520	3.920	0.139	0.154
D2	5.000	5.400	0.197	0.212
E2	5.660	6.060	0.223	0.239
b	0.310	0.510	0.012	0.020
e	1.270BSC.		0.050BSC	
L1	0.560	0.760	0.022	0.030
L2	0.500BSC.		0.020BSC	