

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_b
-60V	50mΩ@-10V	-25A
	65mΩ@-4.5V	

Feature

- High density cell design for low Rdson
- Split gate trench MOSFET technology
- Extremely low switching loss
- Excellent stability and uniformity

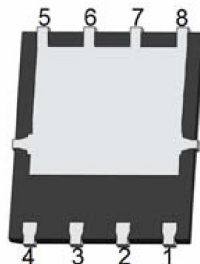
Application

- Automotive Systems
- Industrial DC/DC Conversion Circuits

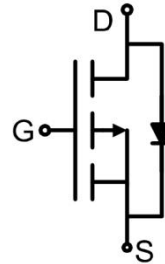
Package



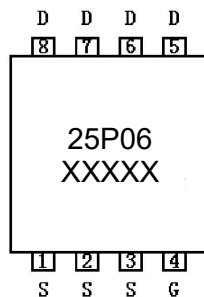
DFN5X6-8L



Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	-25	A
Pulsed Drain Current	I _{DM}	-75	A
Power Dissipation	P _D	60	W
Thermal Resistance,Junction-to-Ambient	R _{θJA}	50	°C/W
Thermal Resistance,Junction-to-Case	R _{θJC}	2.1	°C/W
Single pulse avalanche energy	E _{AS}	81	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	-60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -60V, 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	-1.3		-2.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = -10V, I _D = -20A		38	50	mΩ
		V _{GS} = -4.5V, I _D = -10A		48	65	mΩ
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = -30V, V _{GS} = 0V, f = 1MHz		1100		pF
Output Capacitance	C _{oss}			350		
Reverse Transfer Capacitance	C _{rss}			28		
Total Gate Charge	Q _g	V _{DS} = -30V, V _{GS} = -10V, I _D = -20A		18.7		nC
Gate-Source Charge	Q _{gs}			4.7		
Gate-Drain Charge	Q _{gd}			3.0		
Turn-on delay time	t _{d(on)}	V _{DD} = -30V, V _{GS} = -10V, R _L = 2.5Ω, R _{GEN} = 6Ω		7.5		nS
Turn-on rise time	t _r			39.5		
Turn-off delay time	t _{d(off)}			43.6		
Turn-off fall time	t _f			55.1		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				-25	A
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = -20A			-1.3	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = -20A		20.2		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs ¹⁾		8.2		nC

Notes:

1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.

2) Guaranteed by design, not subject to production testing.

Typical Characteristics

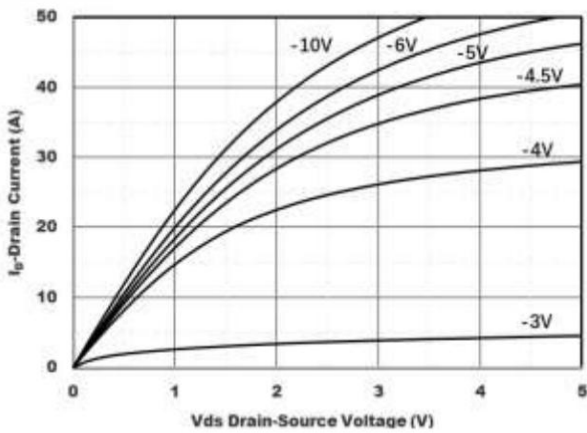


Figure1. Output Characteristics

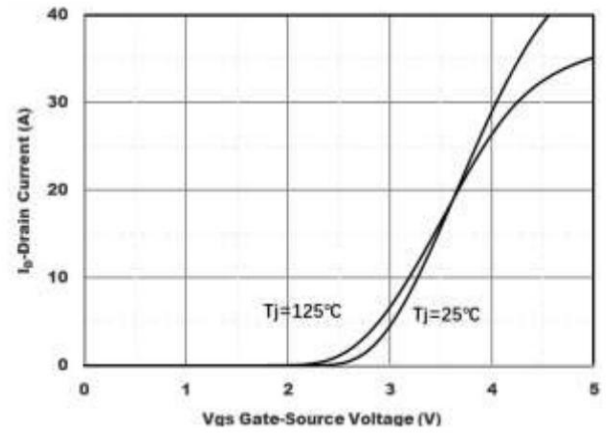


Figure2. Transfer Characteristics

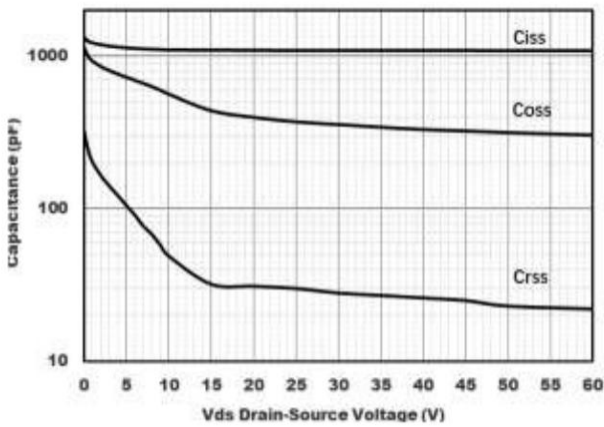


Figure3. Capacitance Characteristics

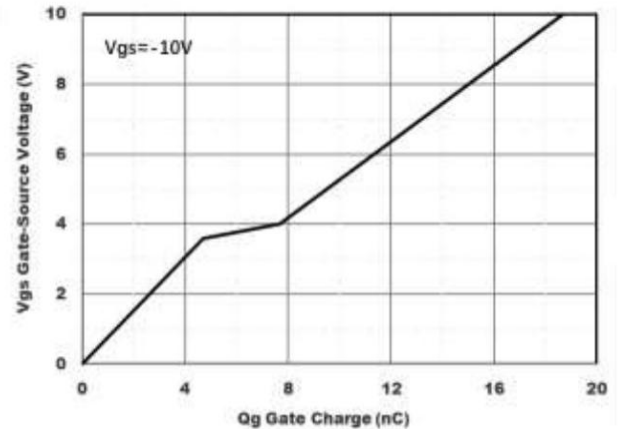


Figure4. Gate Charge

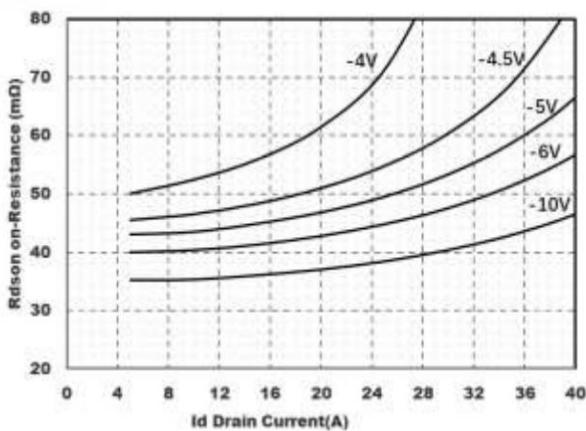


Figure5. : On-Resistance vs. Gate to Source Voltage

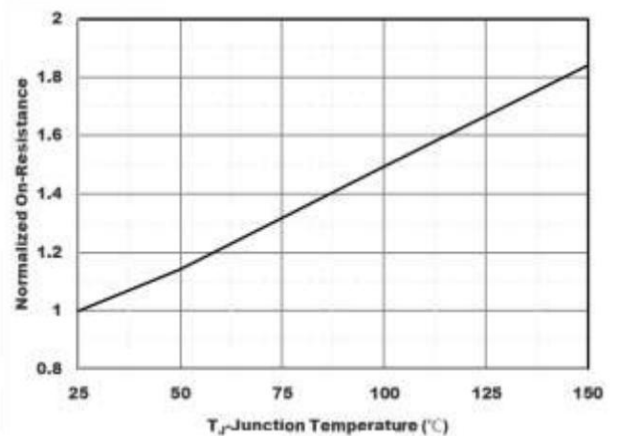


Figure6. Normalized On-Resistance

Typical Characteristics

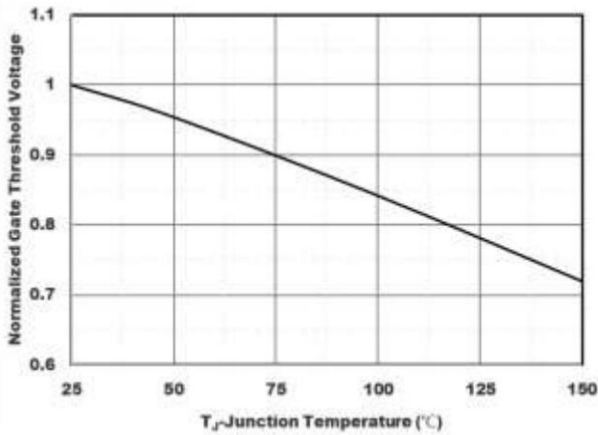


Figure 7. Normalized Gate Threshold Voltage

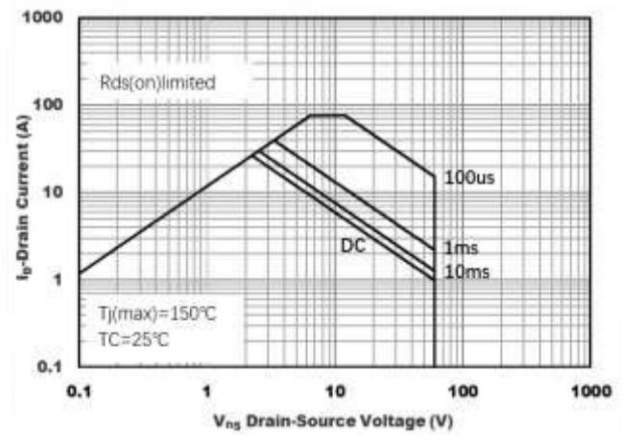


Figure 8. Safe Operation Area

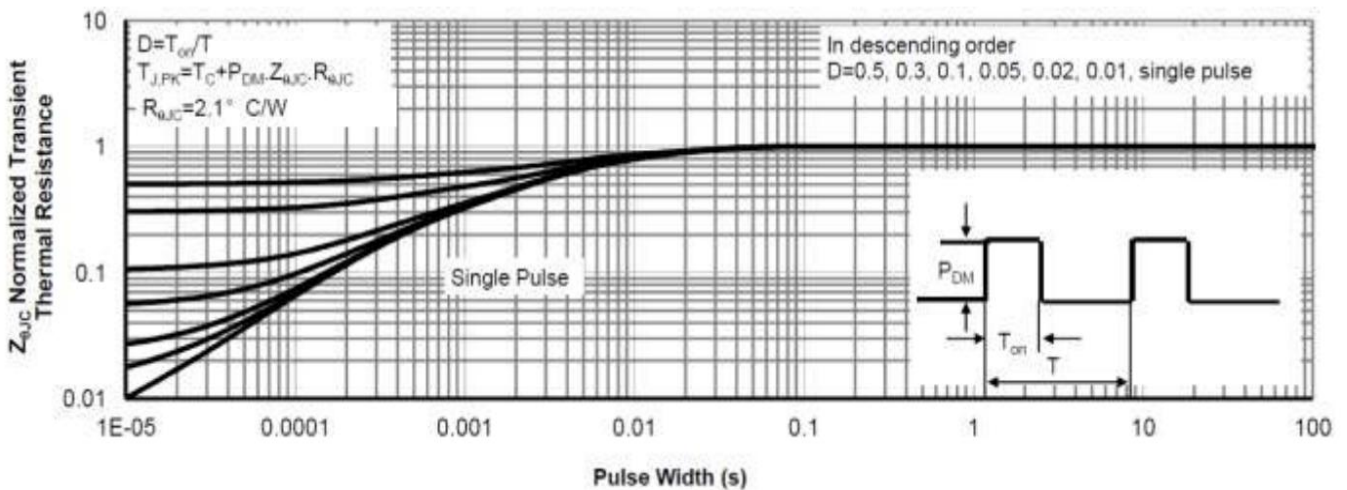
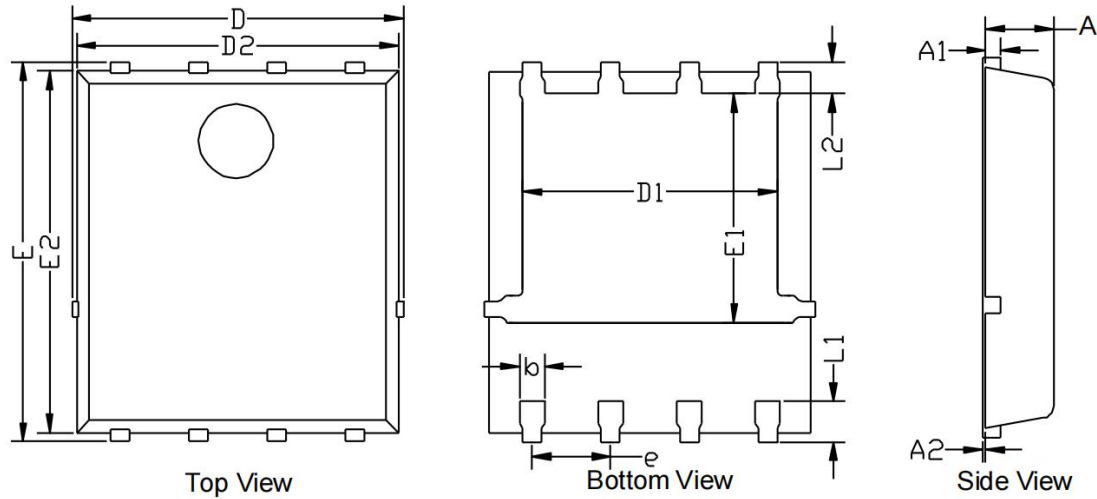


Figure 9. Normalized Maximum Transient thermal impedance

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	0.254 BSC		0.010 BSC	
A2	0.000	0.100	0.000	0.004
D	5.150	5.550	0.203	0.219
E	5.950	6.350	0.234	0.250
D1	3.910	4.320	0.154	0.170
E1	3.520	3.920	0.139	0.154
D2	5.000	5.400	0.197	0.213
E2	5.660	6.060	0.223	0.239
b	0.310	0.510	0.012	0.020
e	1.270 BSC		0.050 BSC	
L1	0.560	0.760	0.022	0.030
L2	0.500 BSC		0.020 BSC	