

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_b
60V	7.5mΩ@10V	70A
	9.5mΩ@4.5V	

Feature

- High density cell design for low Rdson
- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation

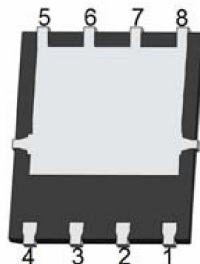
Application

- DC-DC converter
- Power management functions
- Industrial and Motor Drive application

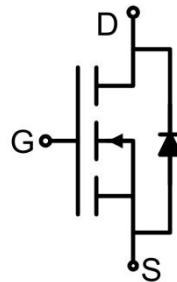
Package



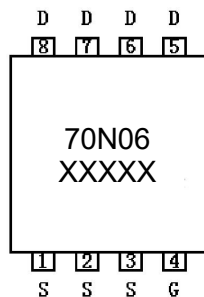
DFN5X6-8L



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 (Silicon limited)	I _D	70	A
Drain Current-Continuous(T _c =100°C)	I _D (100°C)	44	A
Pulsed Drain Current	I _{DM}	210	A
Power Dissipation	P _D	70	W
Thermal Resistance ,Junction-to-Ambient	R _{θJA}	55	°C/W
Thermal Resistance,Junction-to-Case	R _{θJC}	1.8	°C/W
Single pulse avalanche energy	E _{AS}	162	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	1.2	1.7	2.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} =10V, I _D =20A		5.3	7.5	mΩ
		V _{GS} =4.5V, I _D =10A		6.9	9.5	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} =35V, V _{GS} =0V, f =1MHz		2000		pF
Output Capacitance	C _{oss}			390		
Reverse Transfer Capacitance	C _{rss}			13		
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =20A		34		nC
Gate-Source Charge	Q _{gs}			7.8		
Gate-Drain Charge	Q _{gd}			5.2		
Turn-on delay time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V, I _D =12A, R _{GEN} =3Ω		10		nS
Turn-on rise time	t _r			36		
Turn-off delay time	t _{d(off)}			30		
Turn-off fall time	t _f			57		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				70	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		27		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs ¹⁾		36		nC

Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.

Typical Characteristics

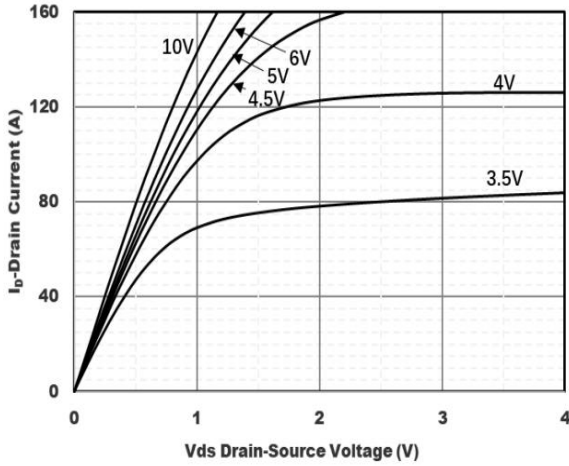


Figure1. Output Characteristics

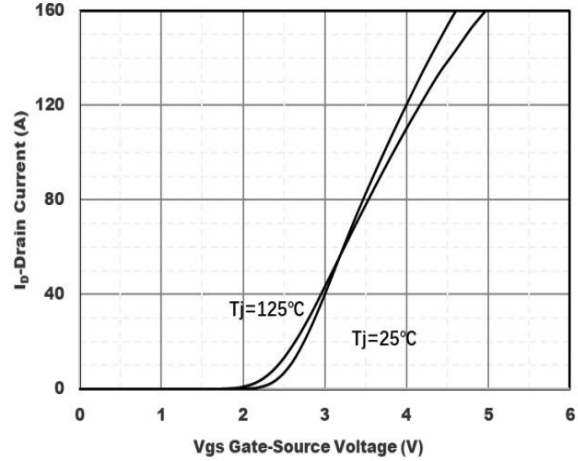


Figure2. Transfer Characteristics

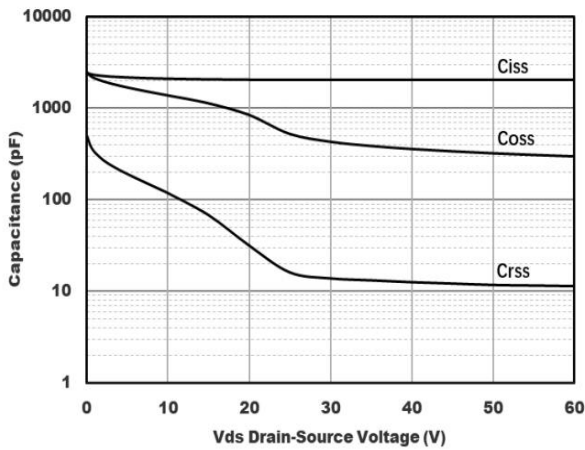


Figure3. Capacitance Characteristics

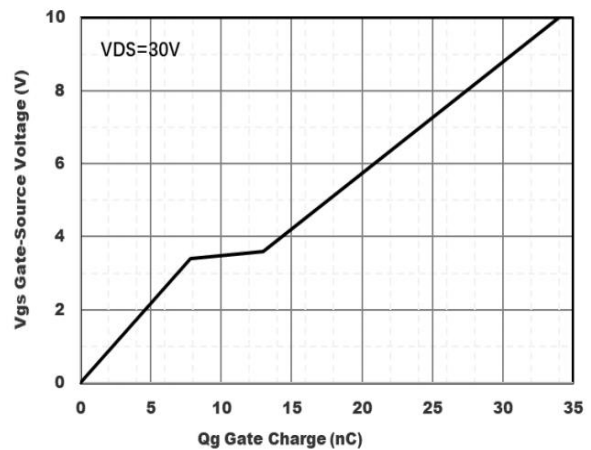


Figure4. Gate Charge

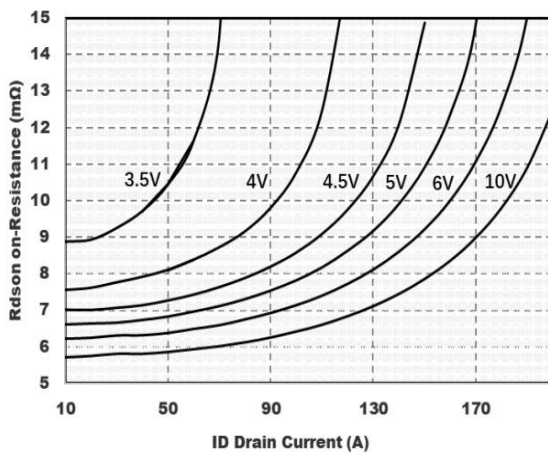


Figure5. Drain-Source on Resistance

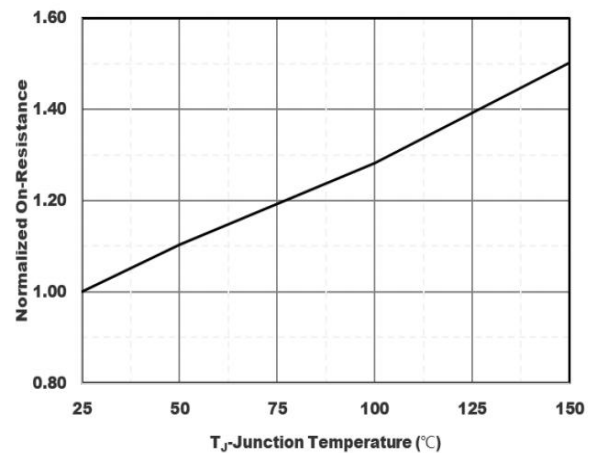


Figure6. Normalized On-Resistance

Typical Characteristics

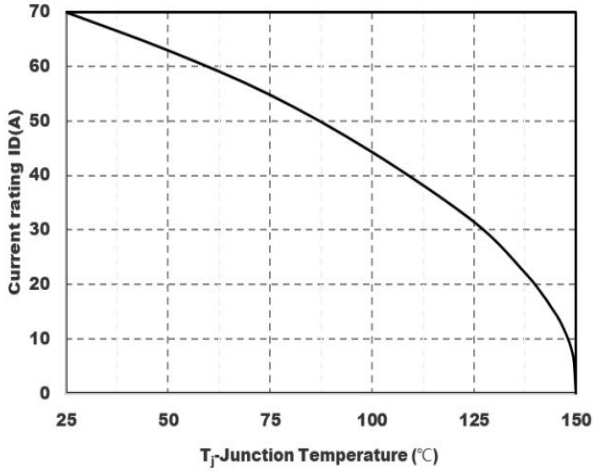


Figure7. Drain current

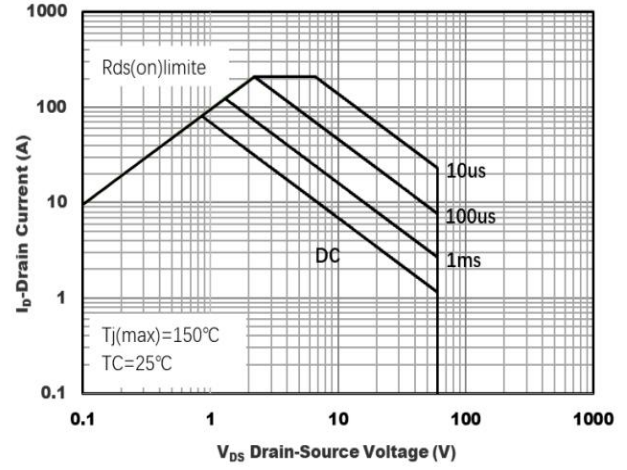


Figure8. Safe Operation Area

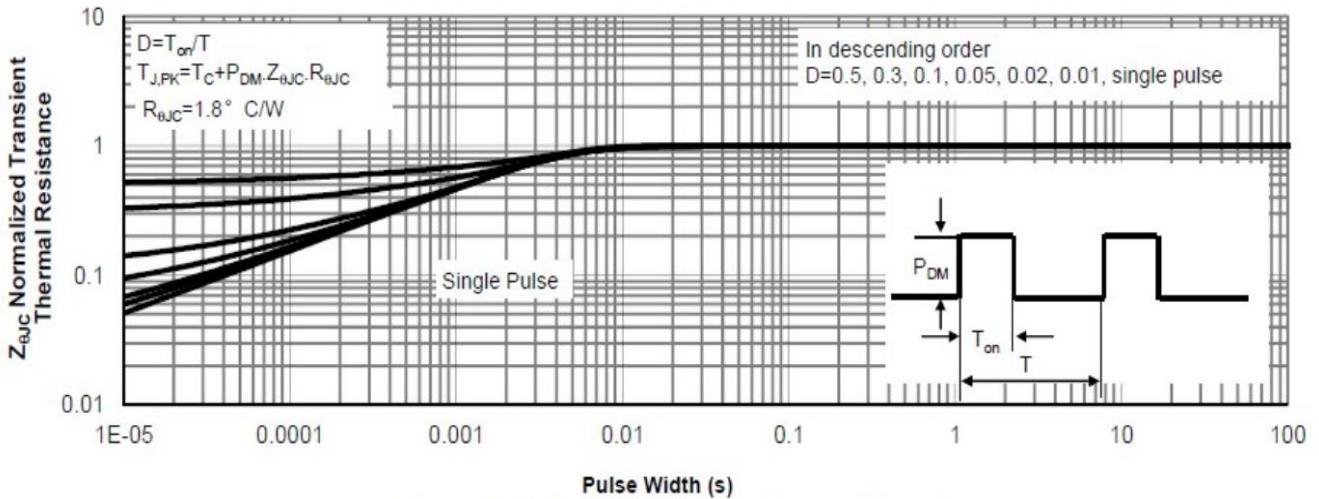
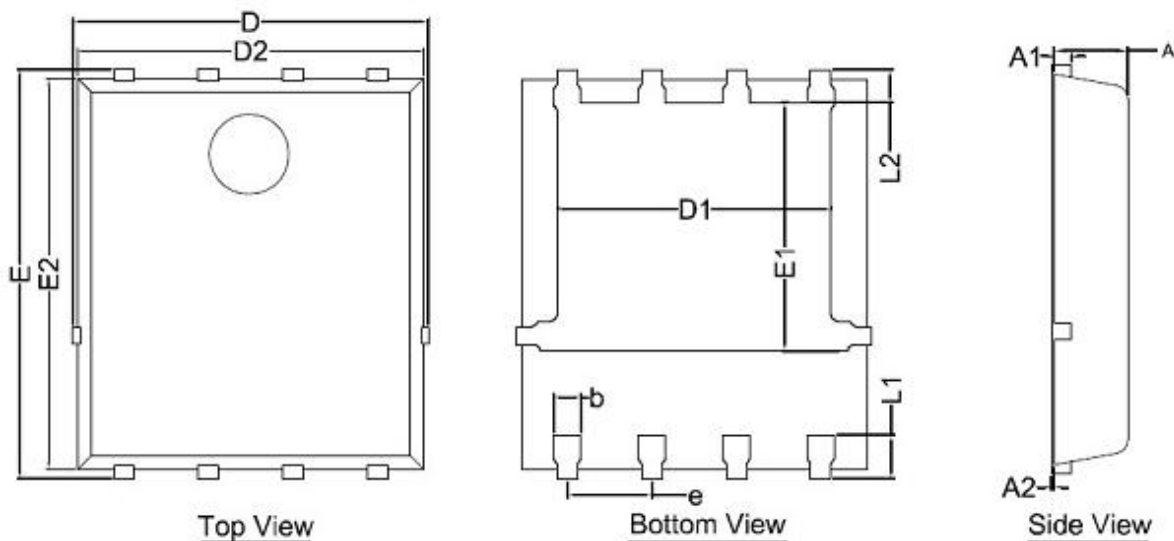


Figure8. Normalized Maximum Transient Thermal Impedance

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	