

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-100V	200mΩ@-10V	-20A
	230mΩ@-4.5V	

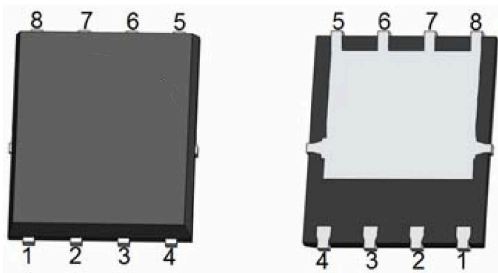
### Feature

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS

### Application

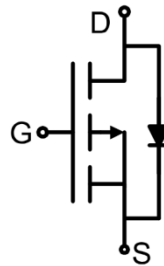
- DC - DC Converter
- Motor driver

### Package

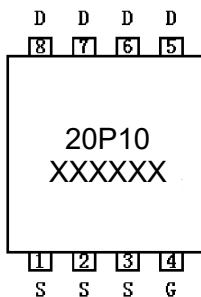


DFN5X6-8L

### Circuit diagram



### Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	-100	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	-20	A
Pulsed Drain Current <sup>3)</sup>	I <sub>DM</sub>	-43	A
Power Dissipation	P <sub>D</sub>	35	W
Thermal Resistance, Junction-to-Case	R <sub>θJC</sub>	3.5	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	°C

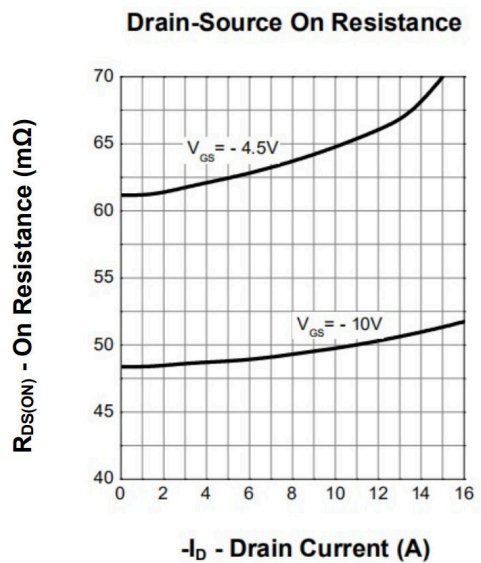
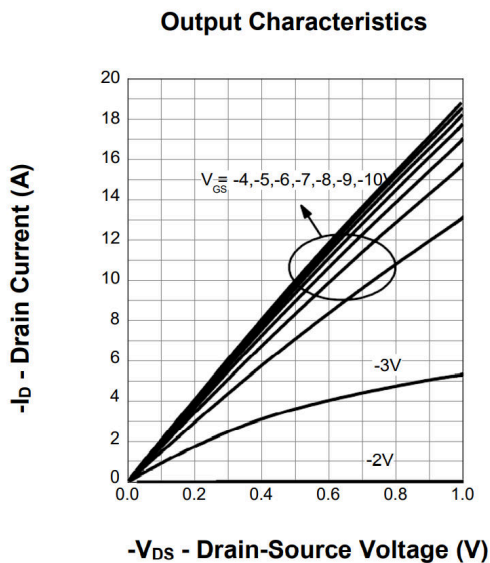
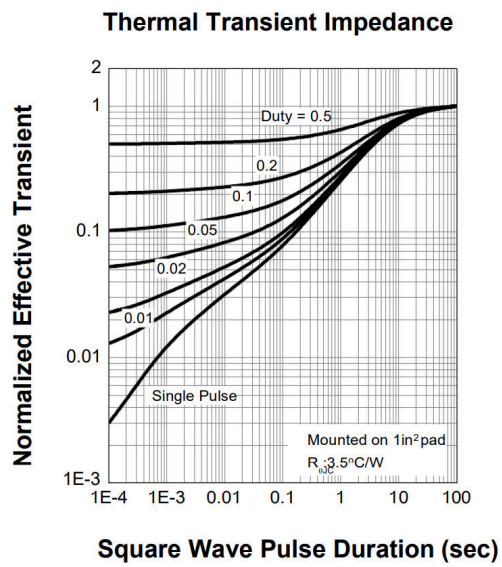
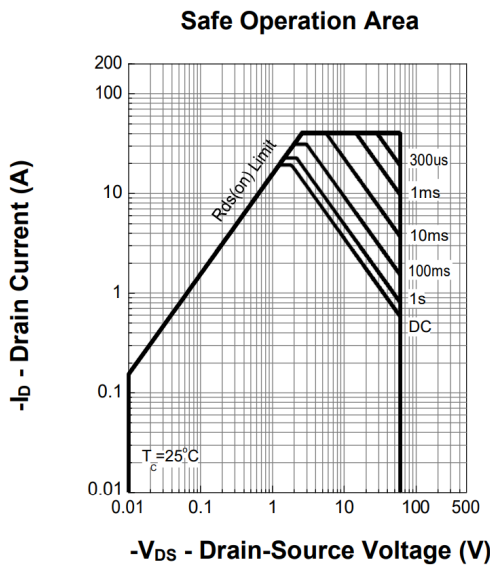
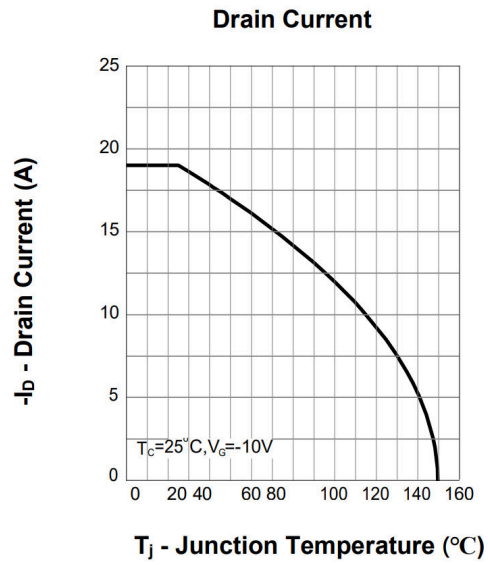
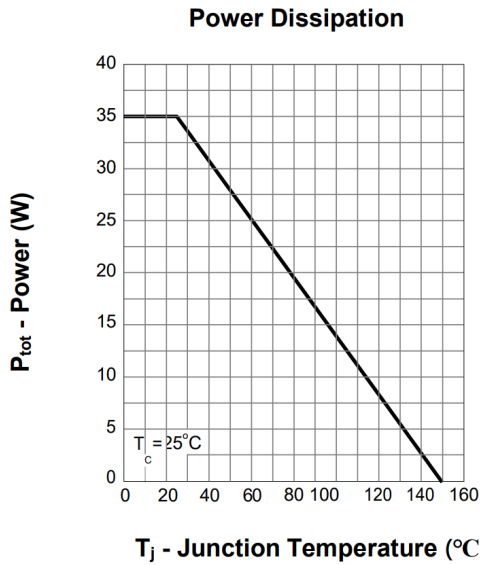
### Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-100			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -80V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1.0		-2.0	V
Drain-source on-resistance <sup>1)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -3A		170	200	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2A		180	230	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -50V, V <sub>GS</sub> = 0V, f = 1MHz		1503		pF
Output Capacitance	C <sub>oss</sub>			38		
Reverse Transfer Capacitance	C <sub>rss</sub>			34		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -50V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -3A		23		nC
Gate-Source Charge	Q <sub>gs</sub>			6.5		
Gate-Drain Charge	Q <sub>gd</sub>			3		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = -50V, V <sub>GS</sub> = -10V, R <sub>L</sub> = 16.6Ω, R <sub>GEN</sub> = 4.5Ω, I <sub>D</sub> = -3A		9.9		nS
Turn-on rise time	t <sub>r</sub>			29.2		
Turn-off delay time	t <sub>d(off)</sub>			276		
Turn-off fall time	t <sub>f</sub>			84.5		
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage	V <sub>DS</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -3A			-1.3	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = -3A, di/dt = 100A/μs <sup>1)</sup>		24.7		nS
Reverse Recovery Charge	Q <sub>rr</sub>			28.4		nC

Notes:

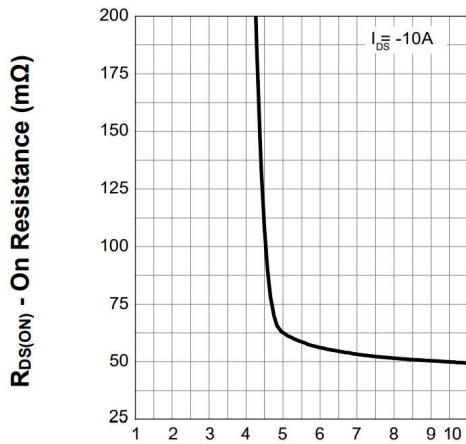
- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.
- 3) Limited by bonding wire

## Typical Characteristics



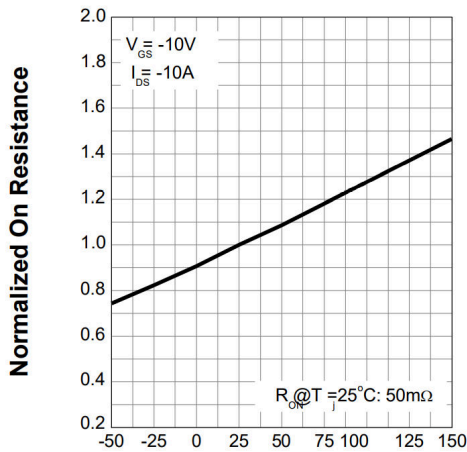
## Typical Characteristics

**Transfer Characteristics**



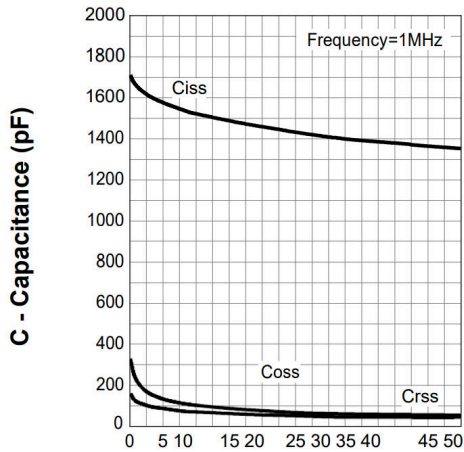
$-V_{GS}$  - Gate-Source Voltage (V)

**Drain-Source On Resistance**



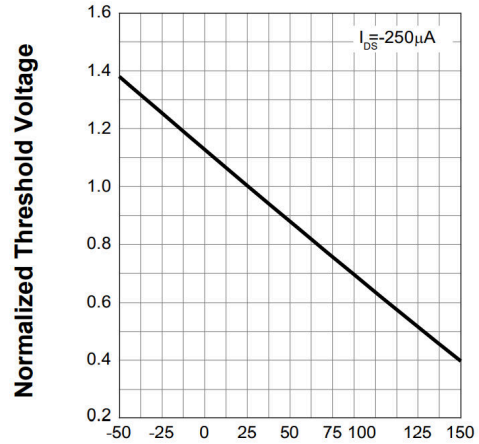
$T_j$  - Junction Temperature ( $^{\circ}C$ )

**Capacitance**



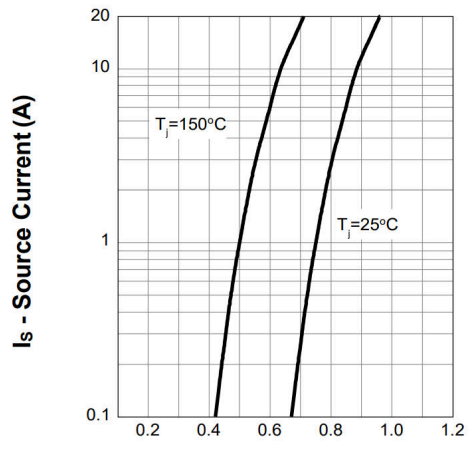
$-V_{DS}$  - Drain-Source Voltage (V)

**Gate Threshold Voltage**



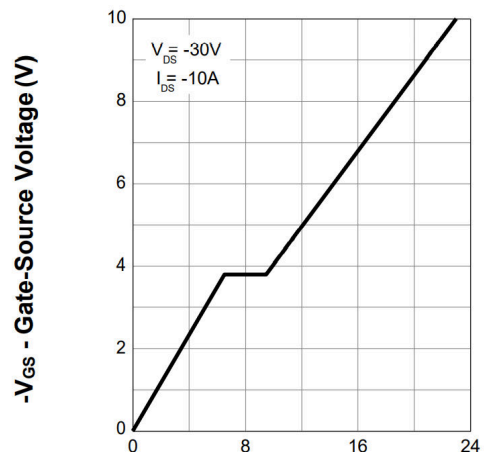
$T_j$  - Junction Temperature ( $^{\circ}C$ )

**Source-Drain Diode Forward**



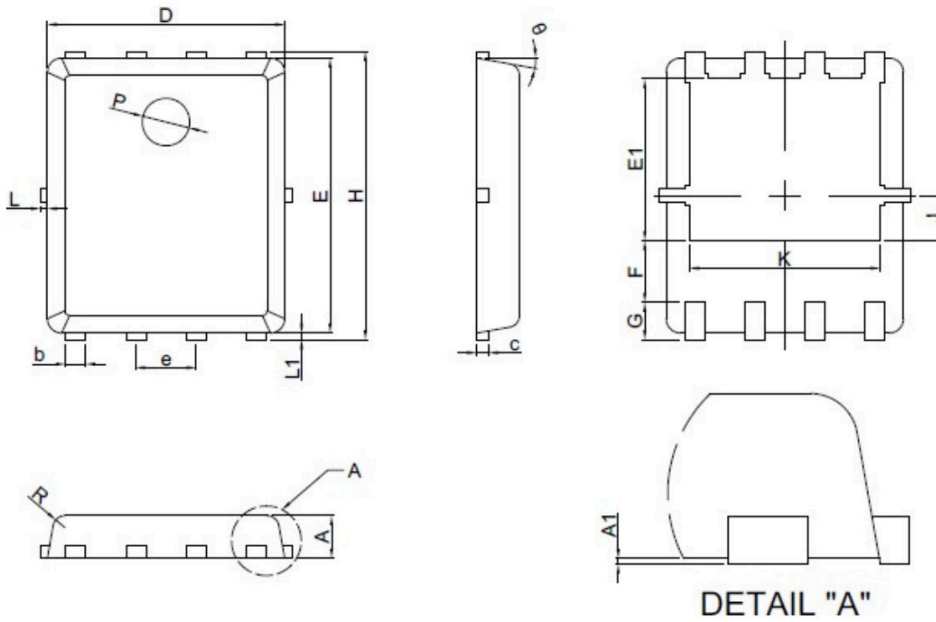
$-V_{SD}$  - Source-Drain Voltage (V)

**Gate Charge**



$Q_G$  - Gate Charge (nC)

### DFN5X6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.800	1.000	0.031	0.040
A1	0.000	0.050	0.000	0.002
b	0.350	0.490	0.013	0.020
c	0.254REF		0.010REF	
D	4.900	5.100	0.192	0.201
F	1.400REF		0.055REF	
E	5.700	5.900	0.224	0.233
e	1.270BSC		0.050BSC	
H	5.950	6.200	0.234	0.244
L1	0.100	0.180	0.004	0.007
G	0.600REF		0.024REF	
K	4.000REF		0.157REF	
L	0.000	0.150	0.000	0.006
J	0.950BSC		0.037BSC	
P	1.000REF		0.040REF	
E1	3.400REF		0.134REF	
θ	6°	14°	6°	14°
R	0.250REF		0.010REF	