

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
100V	8.6mΩ@10V	60A

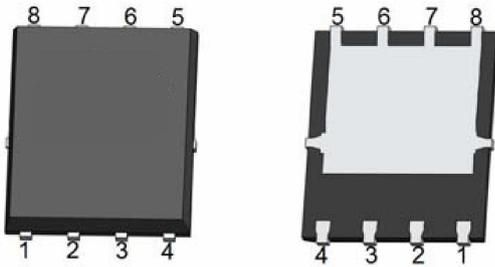
### Feature

- Excellent package for heat dissipation
- Very low on-resistance  $R_{DS(on)}$

### Application

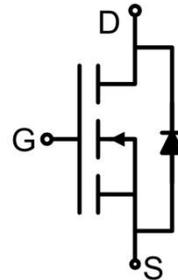
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

### Package

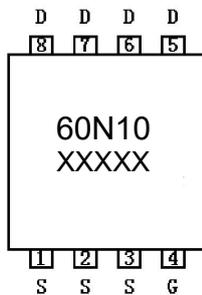


DFN5X6-8L

### Circuit diagram



### Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current (T <sub>C</sub> =25°C)	$I_D$	60	A
Continuous Drain Current (T <sub>C</sub> =100°C)	$I_D(100^\circ\text{C})$	38	A
Pulsed Drain Current	$I_{DM}$	240	A
Power Dissipation (T <sub>C</sub> =25°C)	$P_D$	88	W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.42	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55 ~ +150	°C

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 100V, V_{GS} = 0V$			1	μA
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			±100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.0		4.0	V
Drain-source on-resistance <sup>1)</sup>	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		7.2	8.6	mΩ
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 50V, V_{GS} = 0V, f = 1MHz$		2431		pF
Output Capacitance	$C_{oss}$			715		
Reverse Transfer Capacitance	$C_{rss}$			32		
Total Gate Charge	$Q_g$	$V_{DS} = 50V, V_{GS} = 10V, I_D = 25A$		32		nC
Gate-Source Charge	$Q_{gs}$			11.1		
Gate-Drain Charge	$Q_{gd}$			4.8		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 50V, V_{GS} = 10V, I_{DS} = 25A, R_{GEN} = 2.2\Omega$		51		nS
Turn-on rise time	$t_r$			14.5		
Turn-off delay time	$t_{d(off)}$			69		
Turn-off fall time	$t_f$			20.7		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current <sup>1)</sup>	$I_S$				60	A
Diode Forward voltage	$V_{DS}$	$V_{GS} = 0V, I_S = 20A$			1.3	V
Reverse Recovery Time	$t_{rr}$	$T_J = 25^\circ\text{C}, I_F = 20A$		51.8		nS
Reverse Recovery Charge	$Q_{rr}$	$di/dt = 100A/\mu s$ <sup>1)</sup>		84		nC

Notes:

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

## Typical Characteristics

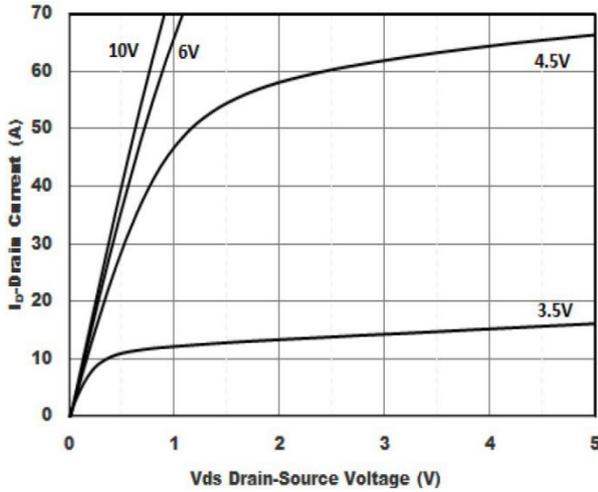


Figure 1. Output Characteristics

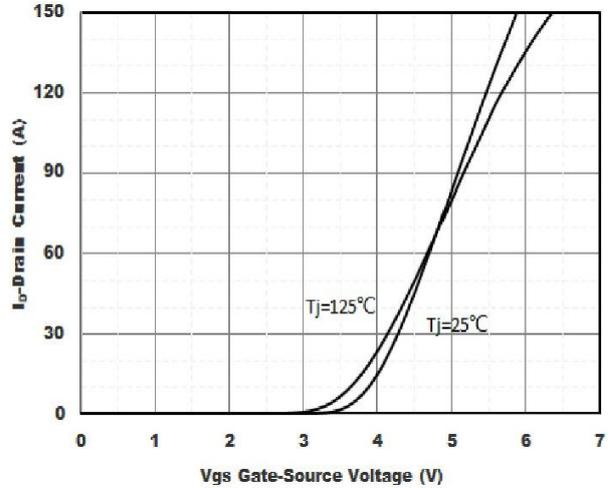


Figure 2. Transfer Characteristics

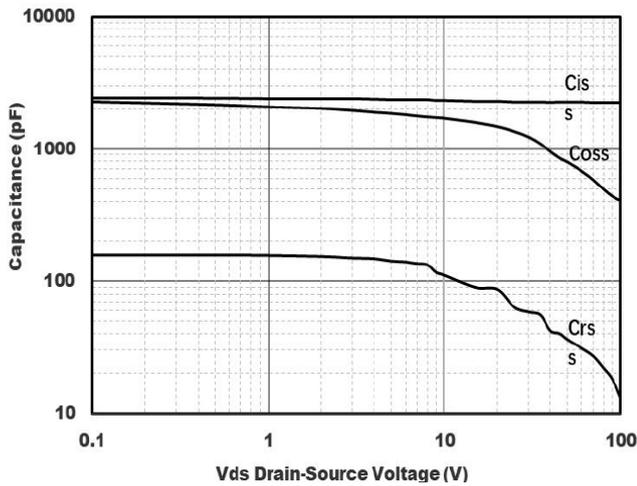


Figure 3. Capacitance characteristics

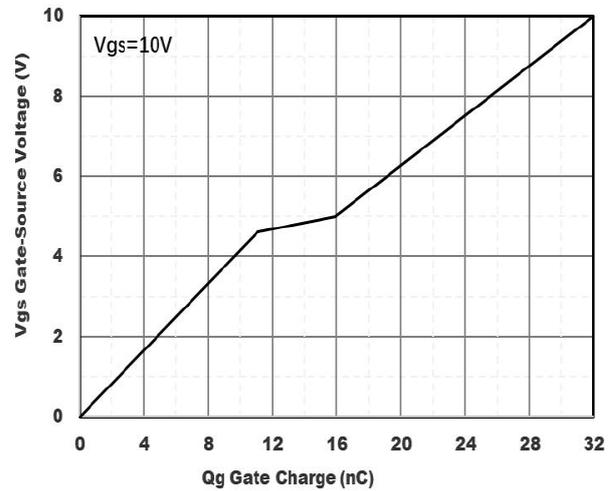


Figure 4. Gate Charge

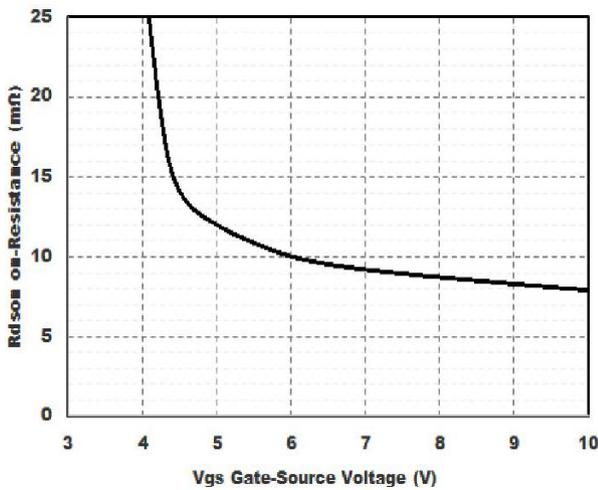


Figure 5. On-Resistance vs. Gate to Source Voltage

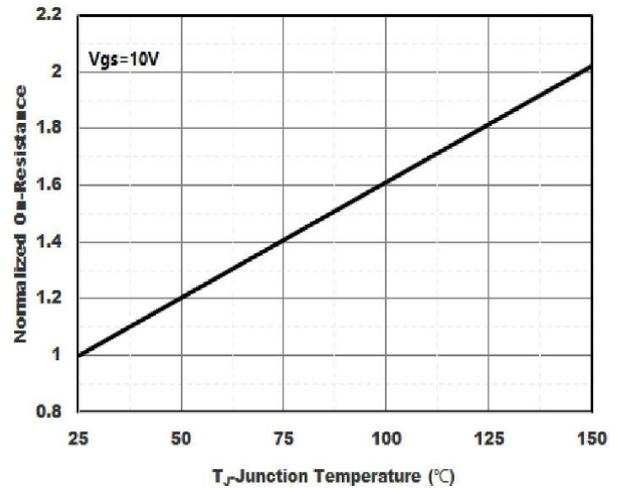


Figure 6. Normalized On-Resistance

## Typical Characteristics

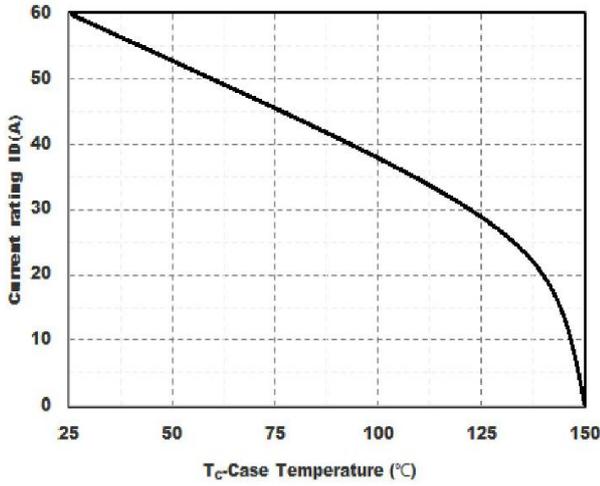


Figure 7. Drain current

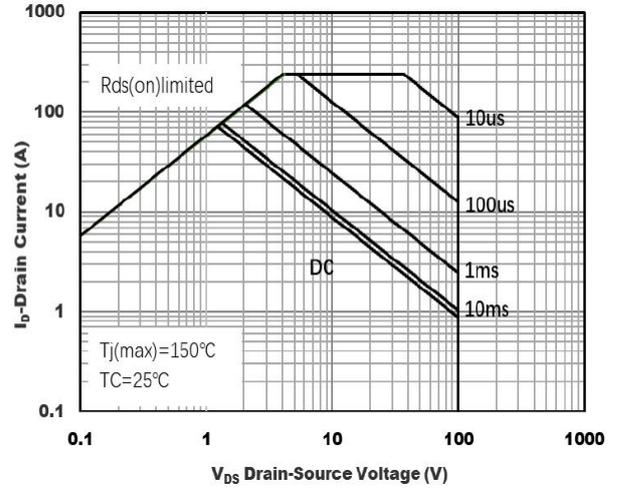


Figure 8. Safe Operation Area

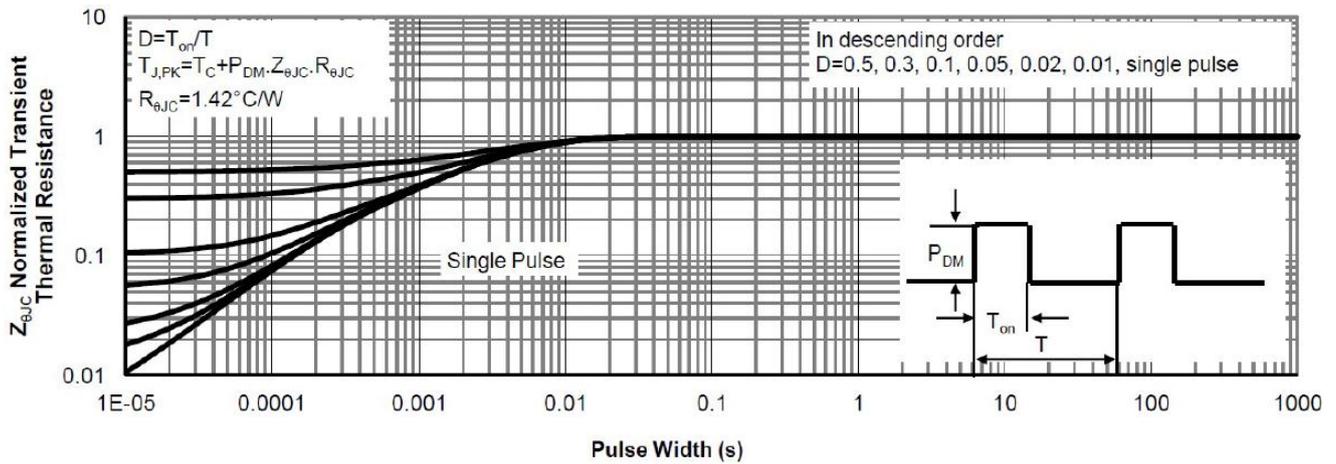
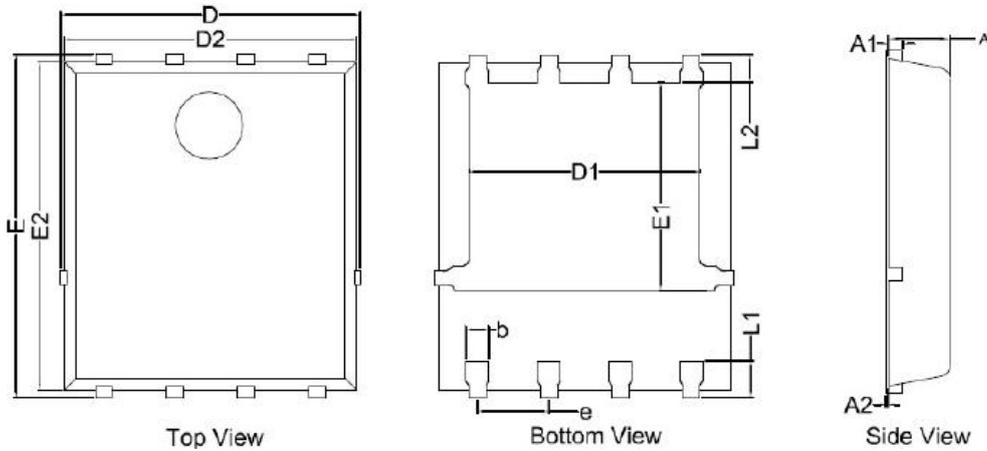


Figure 9. Normalized Maximum Transient Thermal Impedance

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