

Product Summary

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

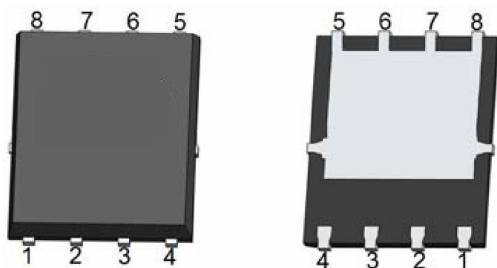
Feature

- Excellent package for heat dissipation
- Very low on-resistance $R_{DS(on)}$
- Suffix“-Q1”for AEC-Q101

Application

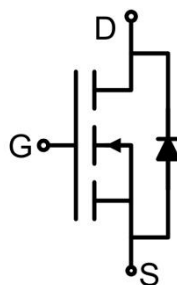
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

Package

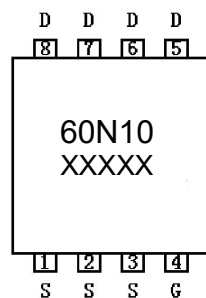


DFN5X6-8L

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	I_D	60	A
Continuous Drain Current($T_C = 100^\circ\text{C}$)	$I_D(100^\circ\text{C})$	38	A
Pulsed Drain Current	I_{DM}	240	A
Power Dissipation	P_D	88	W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.42	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical characteristics ($T_A = 25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	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 ¹⁾	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		7.2	8.6	m Ω
Dynamic characteristics ²⁾						
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		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I_S				60	A
Diode Forward voltage	V_{DS}	$V_{GS} = 0V, I_S = 20A$			1.3	V
Reverse Recovery Time	t_{rr}	$T_J = 25^{\circ}C, I_F = 20A$ $di/dt = 100A/\mu s$ ¹⁾		51.8		nS
Reverse Recovery Charge	Q_{rr}			84		nC

Notes:

1) Pulse Test: Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.

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

Typical Characteristics

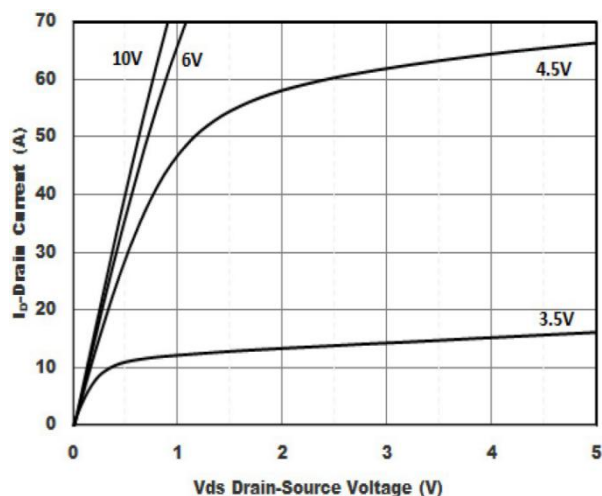


Figure 1. Output Characteristics

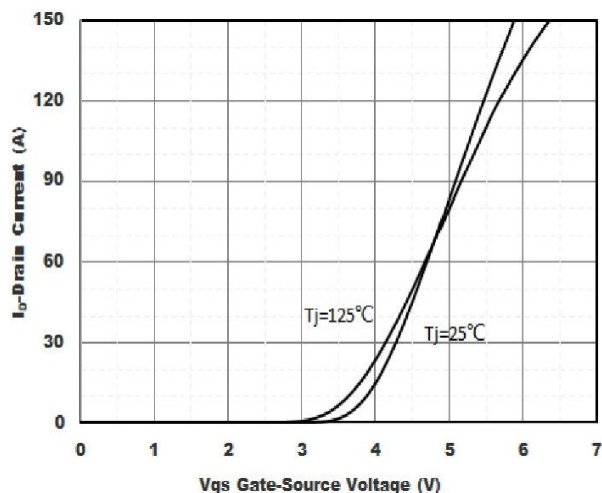


Figure 2. Transfer Characteristics

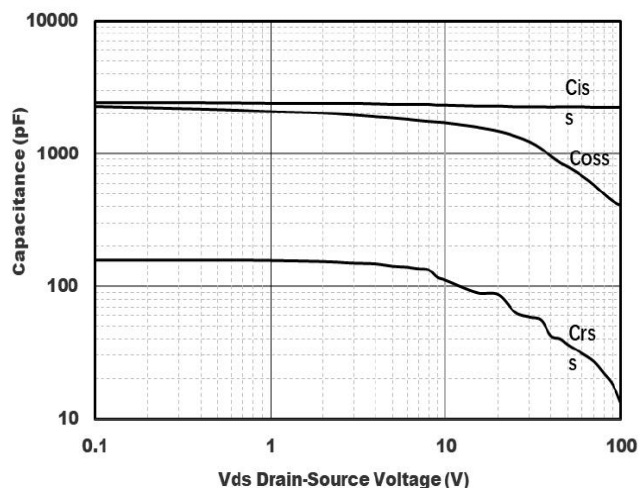


Figure 3. Capacitance characteristics

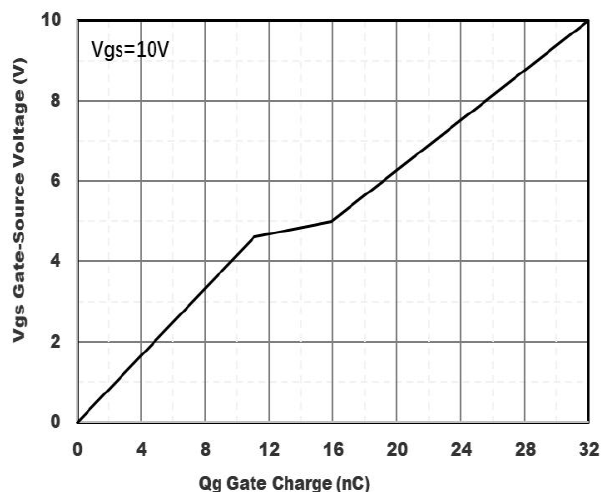


Figure 4. Gate Charge

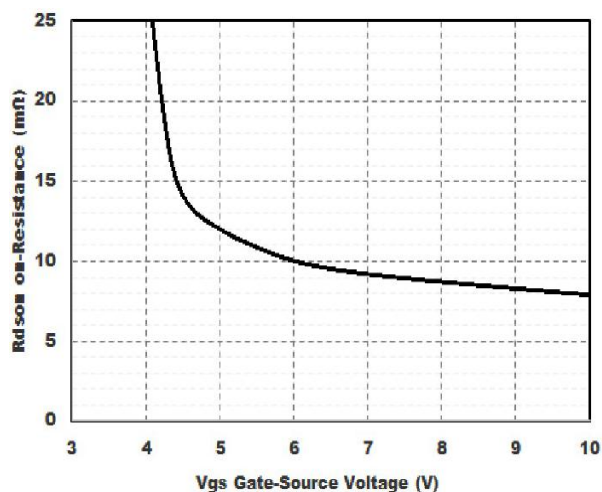


Figure 5. On-Resistance vs. Gate to Source Voltage

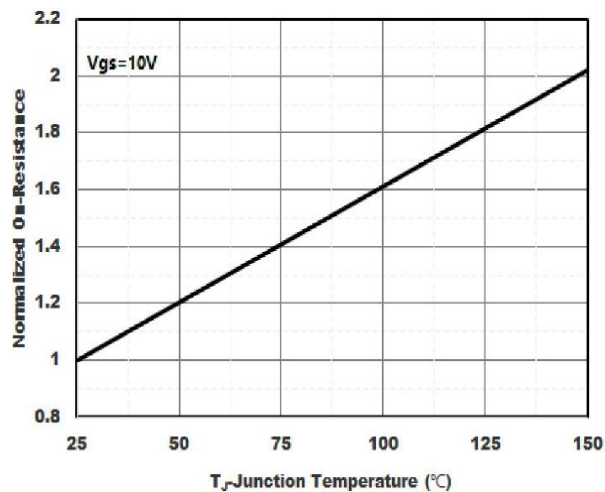


Figure 6. Normalized On-Resistance

Typical Characteristics

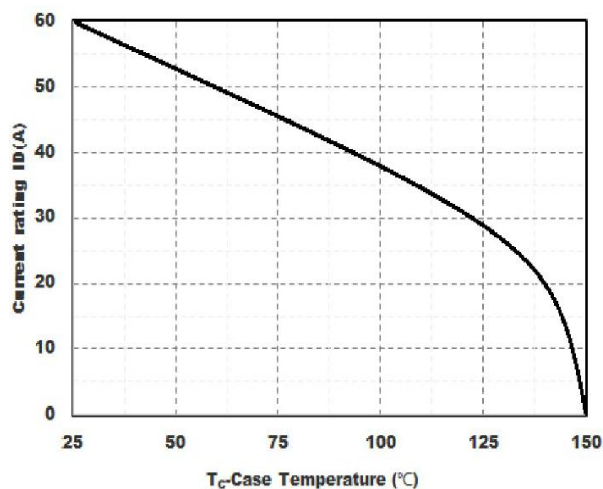


Figure 7. Drain current

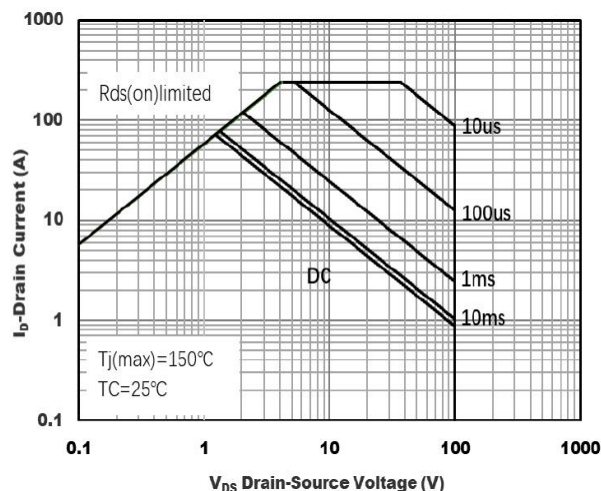


Figure 8. Safe Operation Area

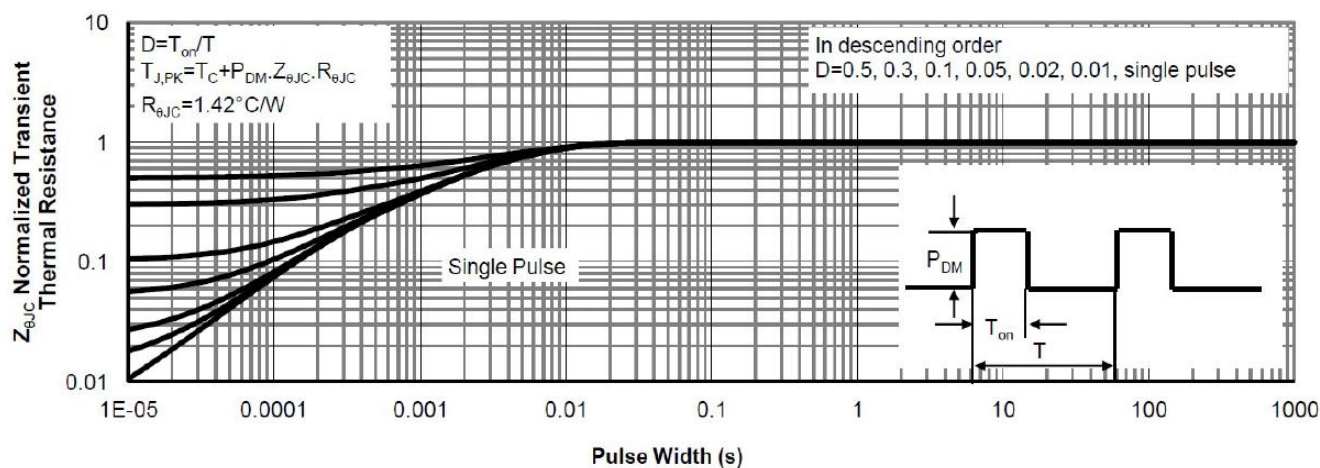
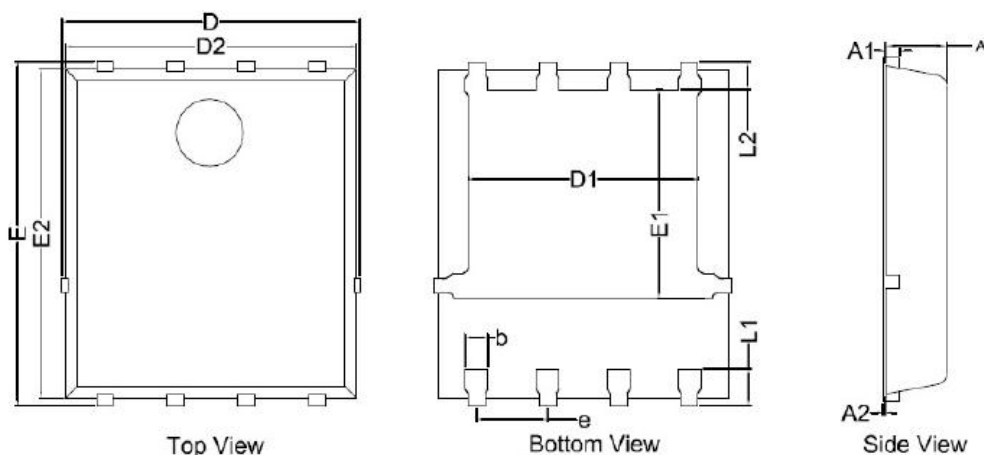


Figure 9. Normalized Maximum Transient Thermal Impedance

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	