

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_b
100V	60mΩ@10V	18A
	70mΩ@4.5V	

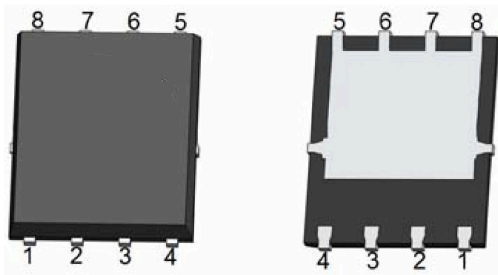
Feature

- Excellent gate charge x $R_{DS(on)}$ product(FOM)
- Very low on-resistance $R_{DS(on)}$
- Suffix "-Q1" for AEC-Q101

Application

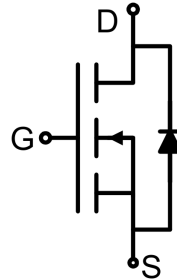
- DC/DC Converter
- Power management functions
- Industrial and Motor Drive application

Package

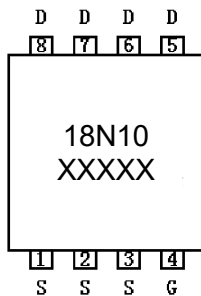


DFN5X6-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	18	A
Pulsed Drain Current	I _{DM}	75	A
Power Dissipation	P _D	30	W
Thermal Resistance, Junction-to-Case	R _{θJC}	4.1	°C/W
Single pulse avalanche energy	E _{AS}	32	mJ
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_A=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	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} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.1		3.0	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = 10V, I _D = 8A			60	mΩ
		V _{GS} = 4.5V, I _D = 8A			70	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = 50V, V _{GS} = 0V, f = 1MHz		1360		pF
Output Capacitance	C _{oss}			114		
Reverse Transfer Capacitance	C _{rss}			58		
Total Gate Charge	Q _g	V _{DS} = 50V, V _{GS} = 10V, I _D = 10A		28		nC
Gate-Source Charge	Q _{gs}			4.6		
Gate-Drain Charge	Q _{gd}			4.9		
Turn-on delay time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, I _D = 2A R _L = 1Ω, R _{GEN} = 3Ω		5		nS
Turn-on rise time	t _r			39		
Turn-off delay time	t _{d(off)}			19		
Turn-off fall time	t _f			7		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				18	A
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = 18A			1.2	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = 20A di/dt = 500A/μs ¹⁾		45		nS
Reverse Recovery Charge	Q _{rr}			23		nC

Notes:

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

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

Typical Characteristics

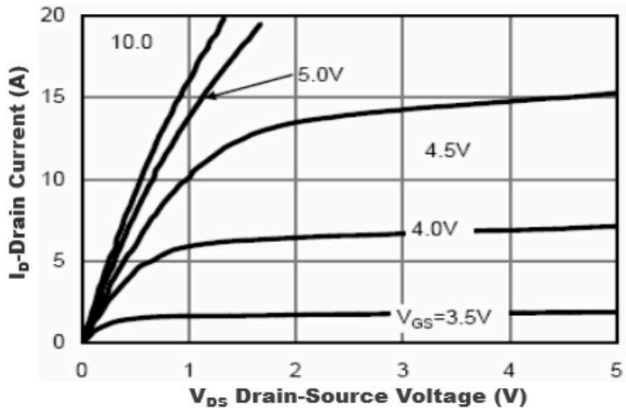


Figure1. Output Characteristics

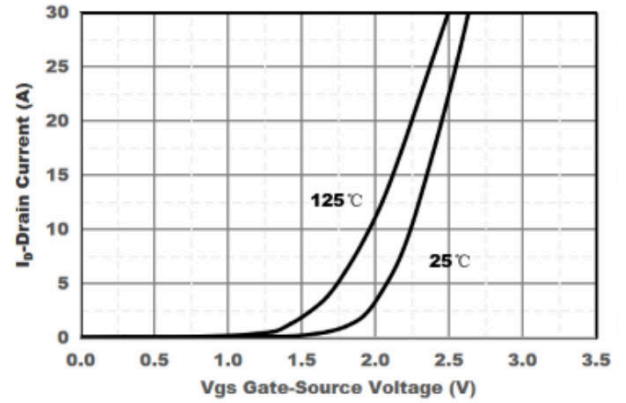


Figure2. Transfer Characteristics

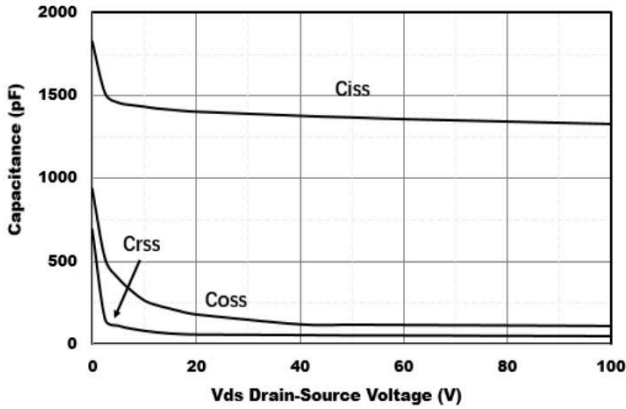


Figure3. Capacitance Characteristics

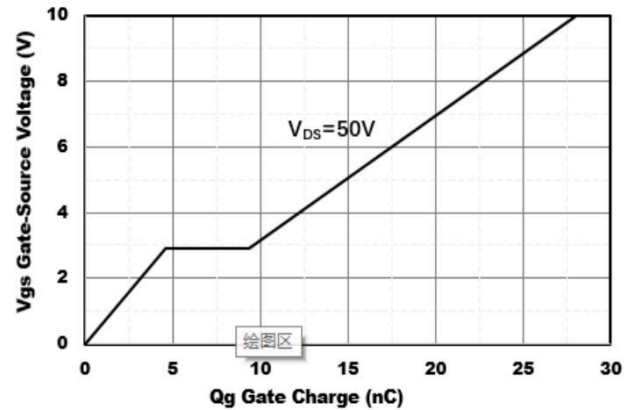


Figure4. Gate Charge

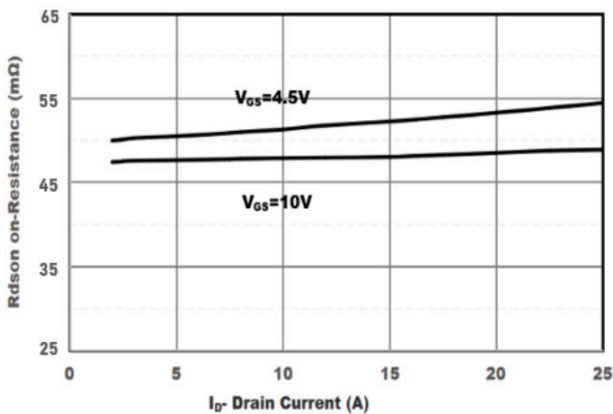


Figure5. Drain-Source on Resistance

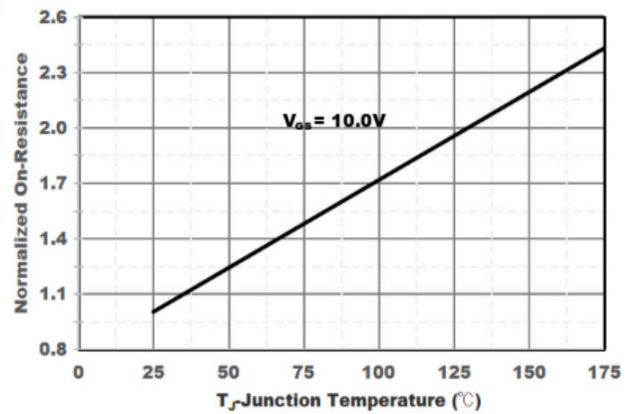
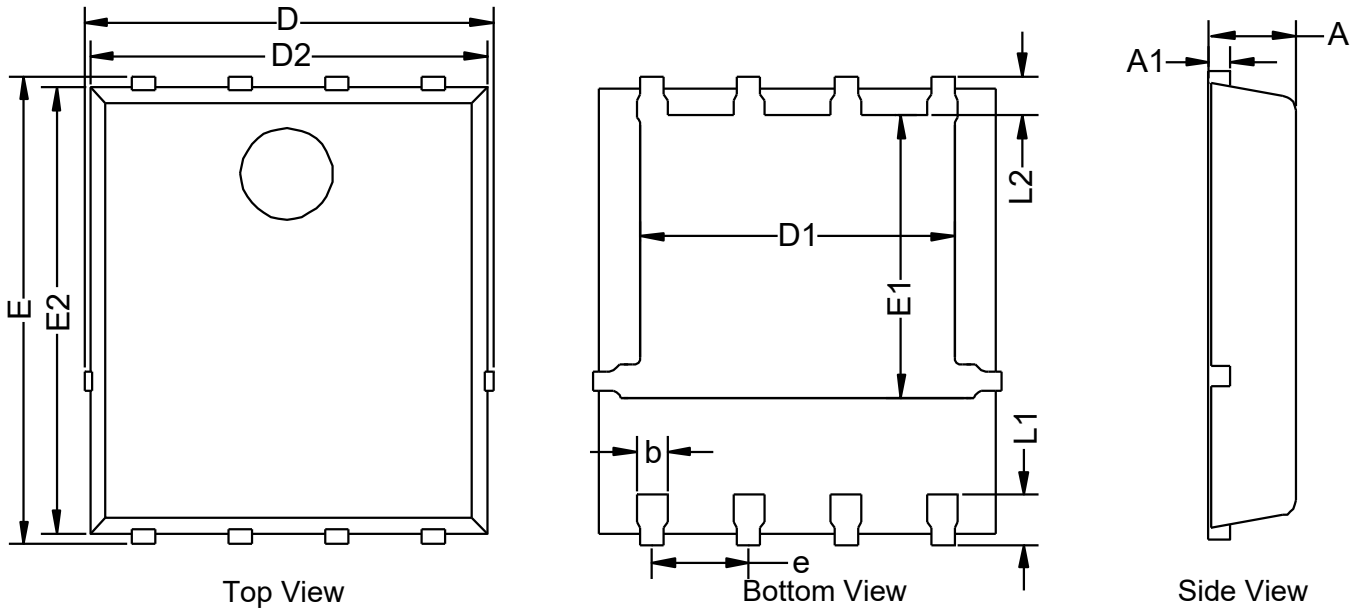


Figure6. Drain-Source on Resistance

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	
D	5.150	5.550	0.203	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	0.213
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	