

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
65V	20mΩ@10V	25A
	25mΩ@4.5V	

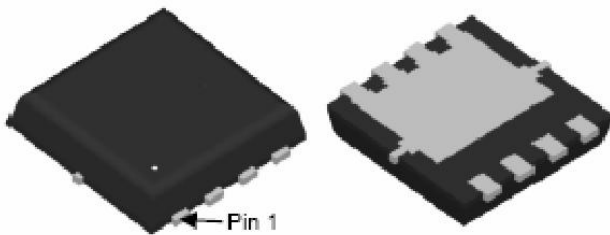
Feature

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Excellent package for heat dissipation
- Good stability and uniformity with high E_{AS}
- Suffix“-Q1”for AEC-Q101

Application

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

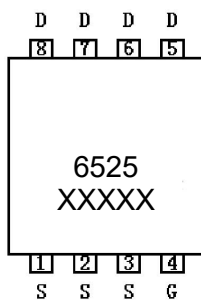
Package



DFN3.3X3.3-8L

Circuit diagram

Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	65	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	25	A
Continuous Drain Current(T _C =100 °C)	I _D (100 °C)	17.7	A
Pulsed Drain Current	I _{DM}	80	A
Power Dissipation	P _D	35	W
Thermal Resistance,Junction-to-Case	R _{θJC}	3.6	°C/W
Single pulse avalanche energy	E _{AS}	150	mJ
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_C=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	65			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =65V, 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	1.4		2.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} =10V, I _D =20A		15	20	mΩ
		V _{GS} =4.5V, I _D =20A		20	25	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =20A		15		S
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f =1MHz		2050		pF
Output Capacitance	C _{oss}			158		
Reverse Transfer Capacitance	C _{rss}			120		
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =20A		50		nC
Gate-Source Charge	Q _{gs}			6		
Gate-Drain Charge	Q _{gd}			15		
Turn-on delay time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V, R _L =6.7Ω, R _{GEN} =3Ω		7.4		nS
Turn-on rise time	t _r			5.1		
Turn-off delay time	t _{d(off)}			28.2		
Turn-off fall time	t _f			5.5		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				25	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =20A			1.2	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = I _S		28		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs ¹⁾		40		nC

Notes:

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

Typical Characteristics

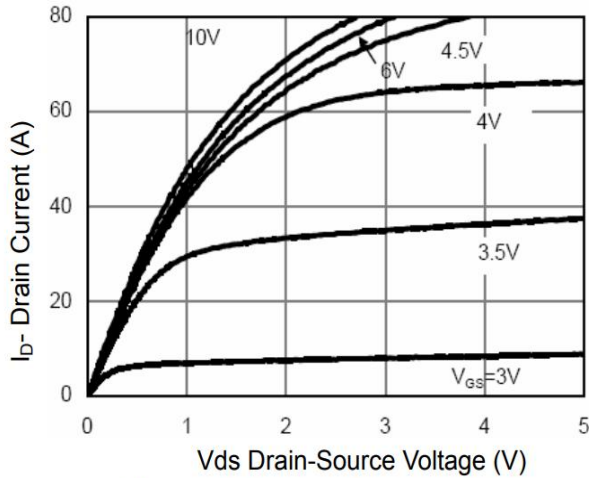


Figure 1 Output Characteristics

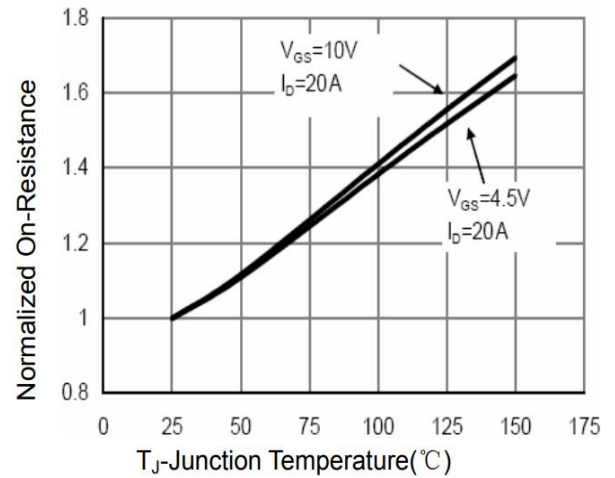


Figure 2 Rds(on)-Junction Temperature

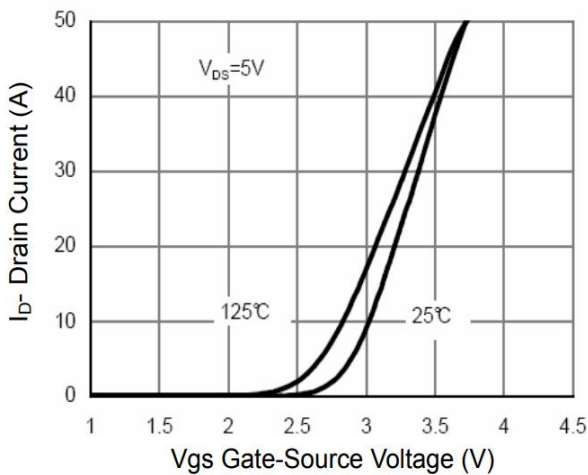


Figure 3 Transfer Characteristics

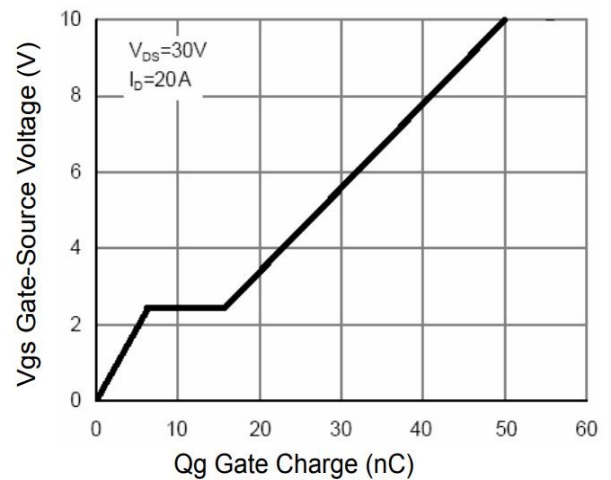


Figure 4 Gate Charge

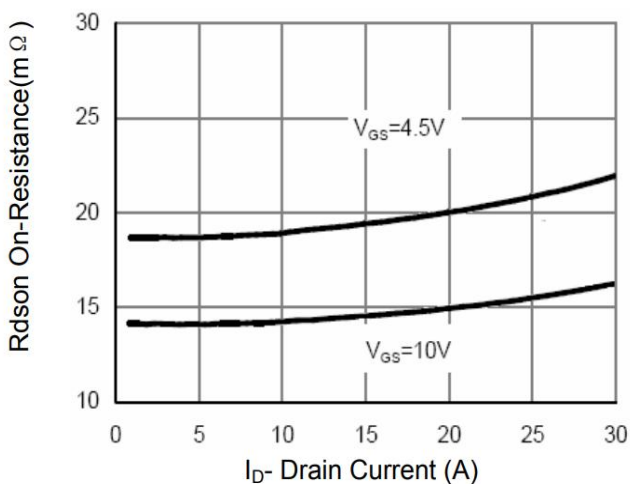


Figure 5 Rds(on)- Drain Current

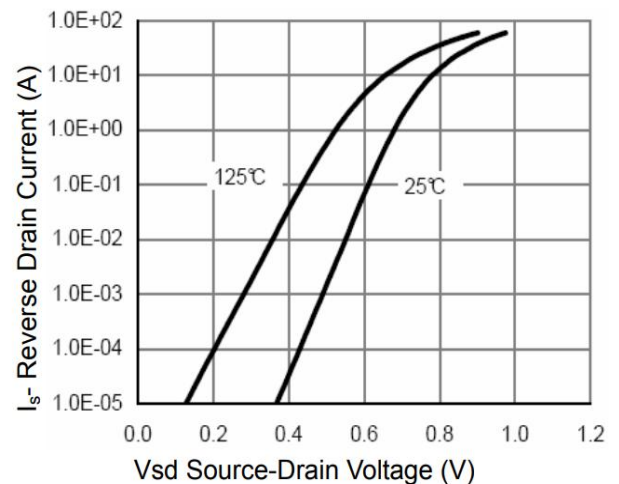


Figure 6 Source- Drain Diode Forward

Typical Characteristics

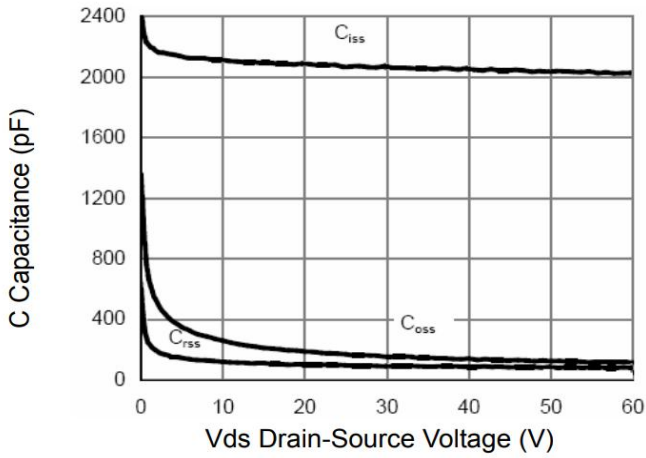


Figure 7 Capacitance vs Vds

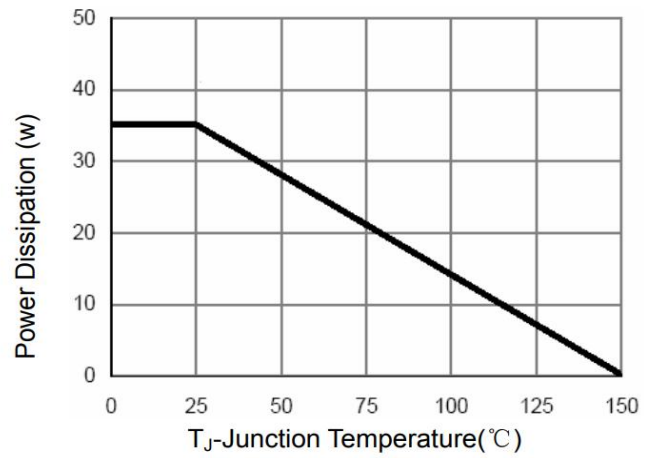


Figure 8 Power De-rating

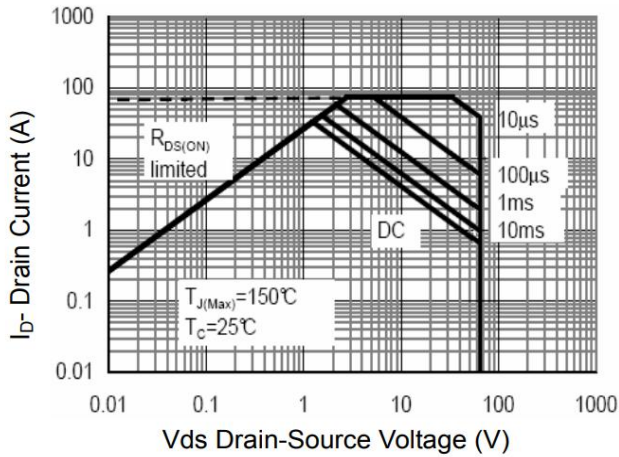


Figure 9 Safe Operation Area

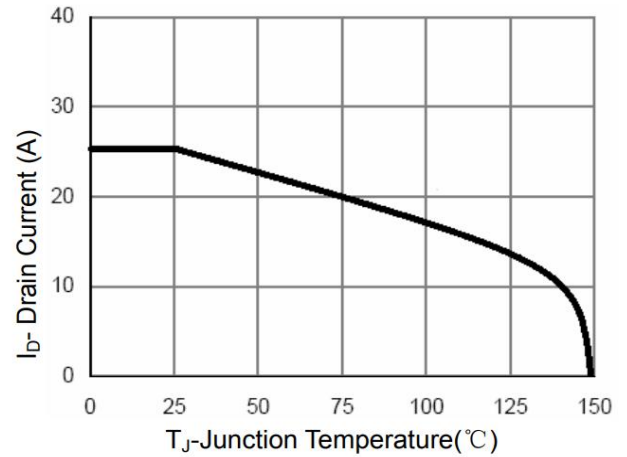


Figure 10 Current De-rating

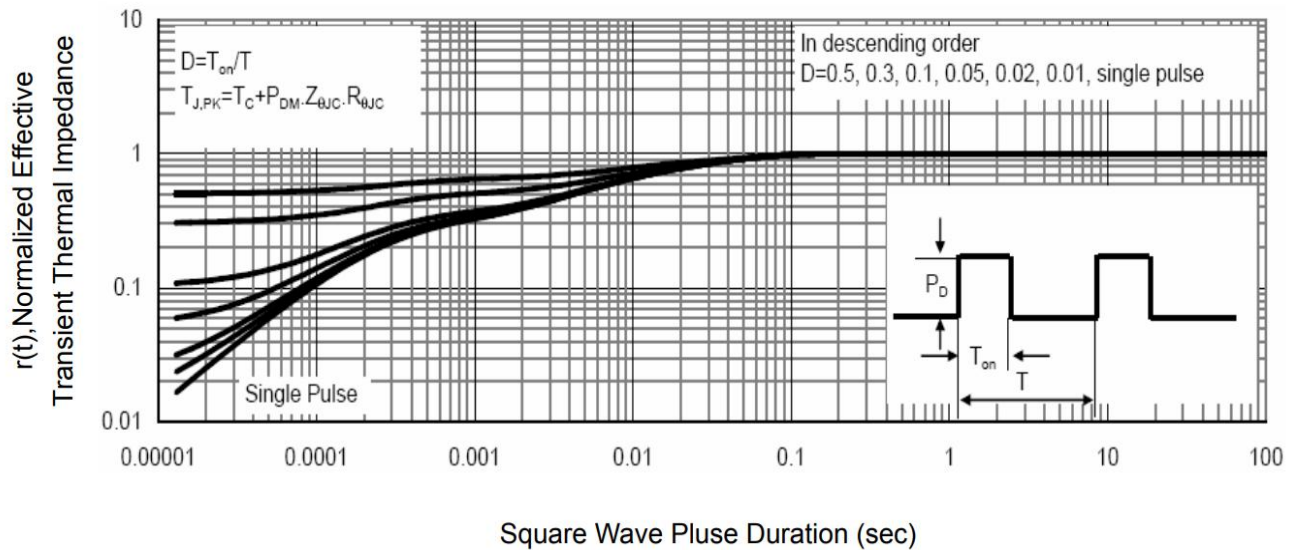
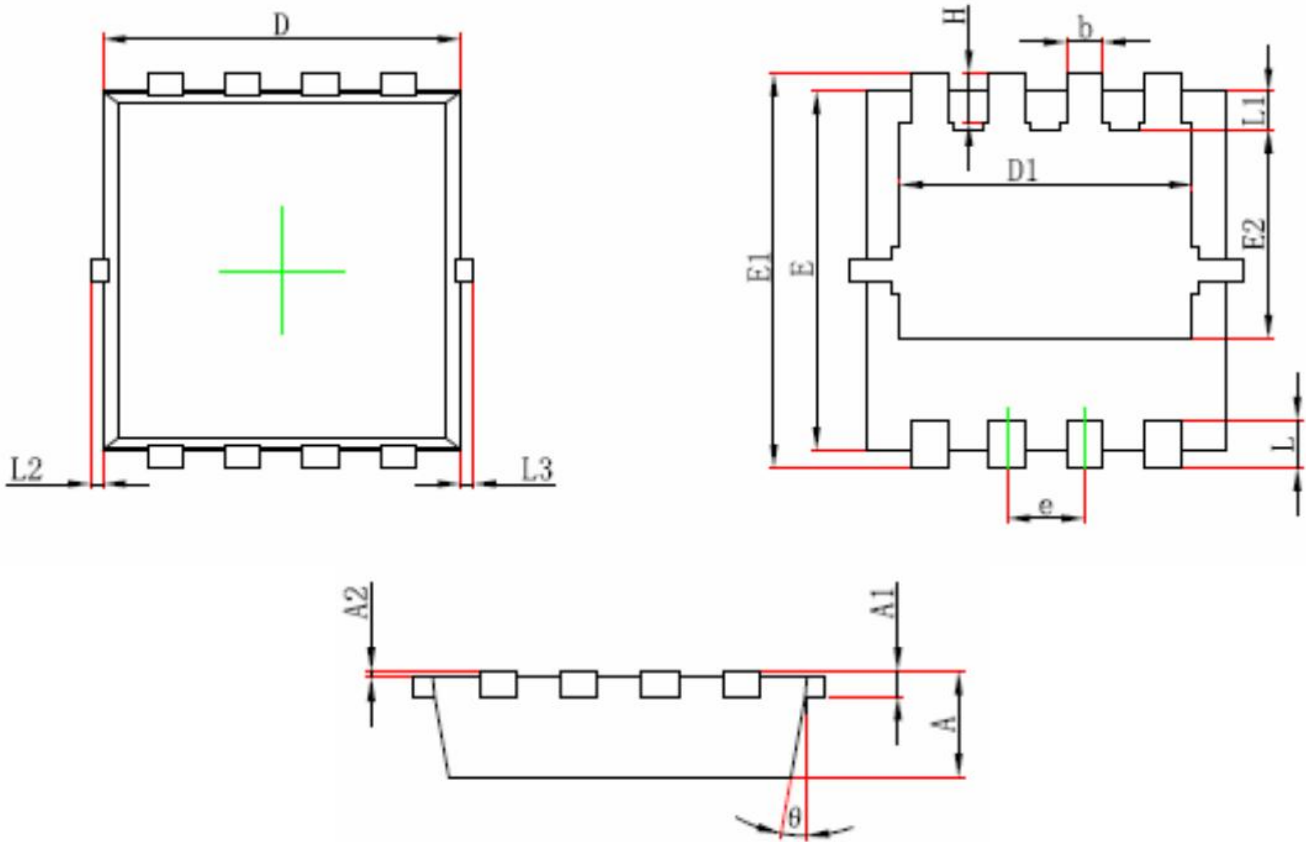


Figure 11 Normalized Maximum Transient Thermal Impedance

DFN3.3X3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF		0.006 REF	
A2	0.000	0.050	0.000	0.002
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0.000	0.100	0.000	0.004
L3	0.000	0.100	0.000	0.004
H	0.315	0.515	0.012	0.020
θ	9 °	13 °	9 °	13 °