

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	8.3mΩ@-4.5V	-55A
	10.0mΩ@-2.5V	
	15.0mΩ@-1.8V	

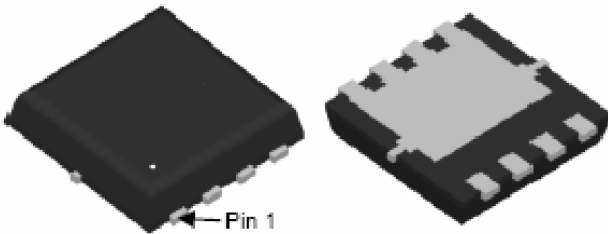
Feature

- High density cell design for ultra low Rdson
- High Speed switching

Application

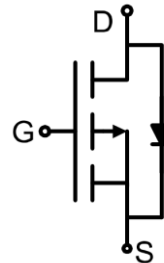
- High current load applications
- Load switching
- Hard switched and high frequency circuits

Package



DFN3.3X3.3-8L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±10	V
Continuous Drain Current	I _D	Ta=25°C	-55
		Ta=100°C	-35
Pulsed Drain Current	I _{DM}	-160	A
Power Dissipation	P _D	Tc=25°C	38
		Ta=25°C	3.2
Thermal Resistance, Junction-to-Case	R _{θJC}	3.3	°C/W
Single pulse avalanche energy	E _{AS}	75	mJ
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (TA=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	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.62	-1.0	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} = -4.5V, I _D = -15A		6.5	8.3	mΩ
		V _{GS} = -2.5V, I _D = -10A		8.0	10.0	
		V _{GS} = -1.8V, I _D = -8A		10.3	15.0	
Dynamic characteristics²⁾						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		6358		pF
Output Capacitance	C _{oss}			690		
Reverse Transfer Capacitance	C _{rss}			477		
Total Gate Charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -9.1A		12.7		nC
Gate-Source Charge	Q _{gs}			21		
Gate-Drain Charge	Q _{gd}			149		
Turn-on delay time	t _{d(on)}	V _{DD} = -15V, V _{GS} = -10V, I _D = -6A, R _{GEN} = 2.5Ω		11		nS
Turn-on rise time	t _r			36		
Turn-off delay time	t _{d(off)}			182		
Turn-off fall time	t _f			191		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I _S				-55	A
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = -20A			-1.2	V

Notes:

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

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

Typical Characteristics

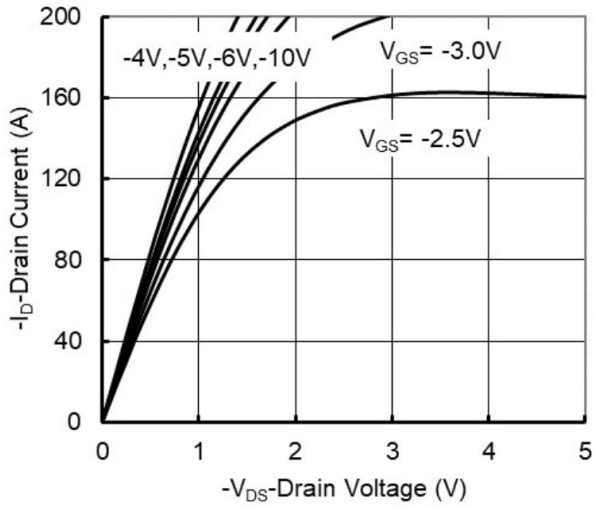


Figure 1. Output Characteristics

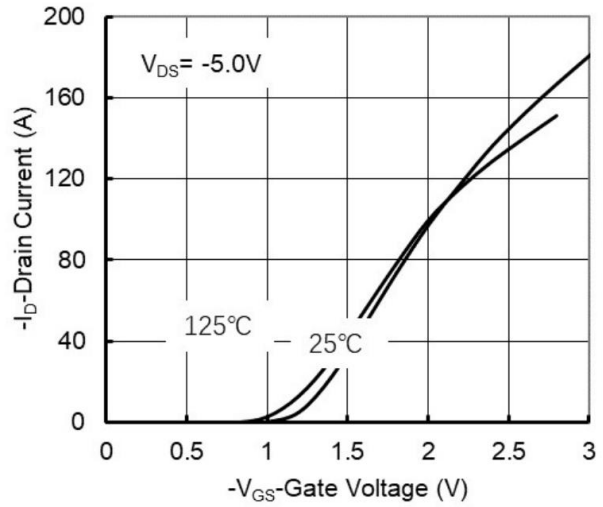


Figure 2. Transfer Characteristics

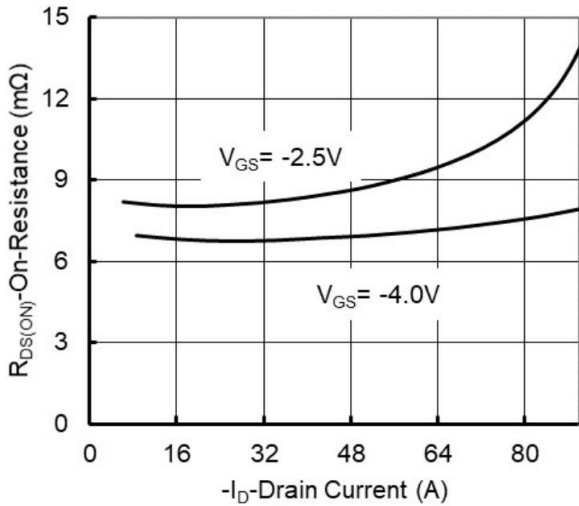


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

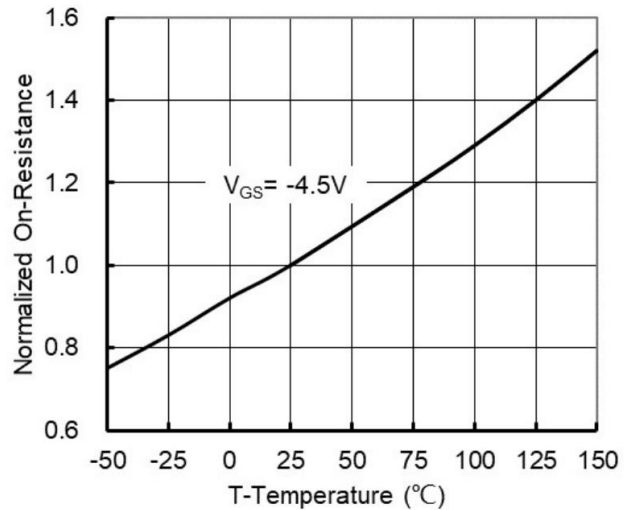


Figure 4. On-Resistance vs. Junction Temperature

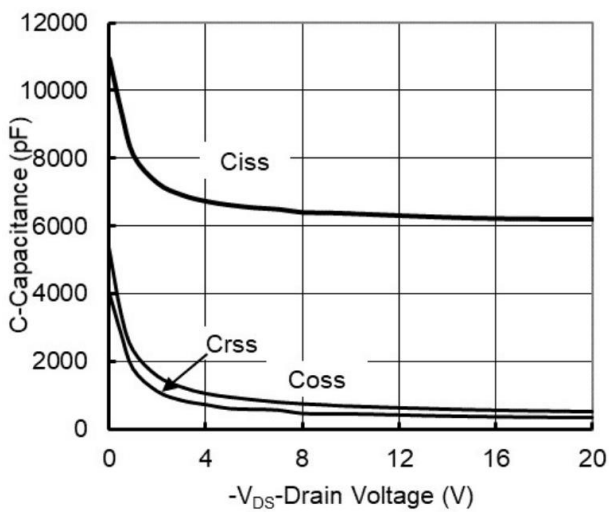


Figure 5. Capacitance Characteristics

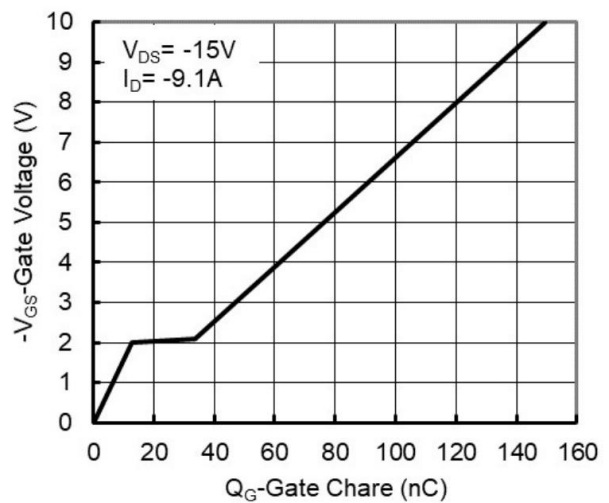


Figure 6. Gate Charge

Typical Characteristics

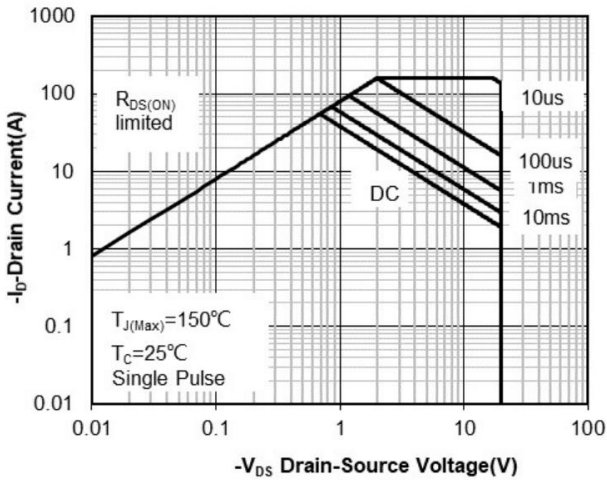


Figure 7. Safe Operation Area

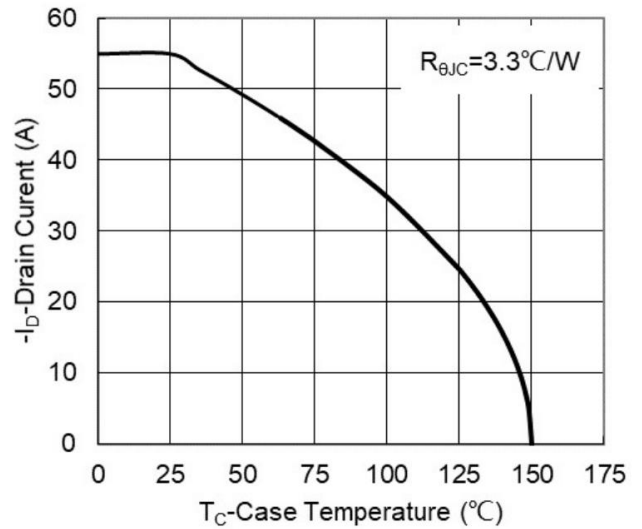


Figure 8. Maximum Continuous Drain Current vs Case Temperature

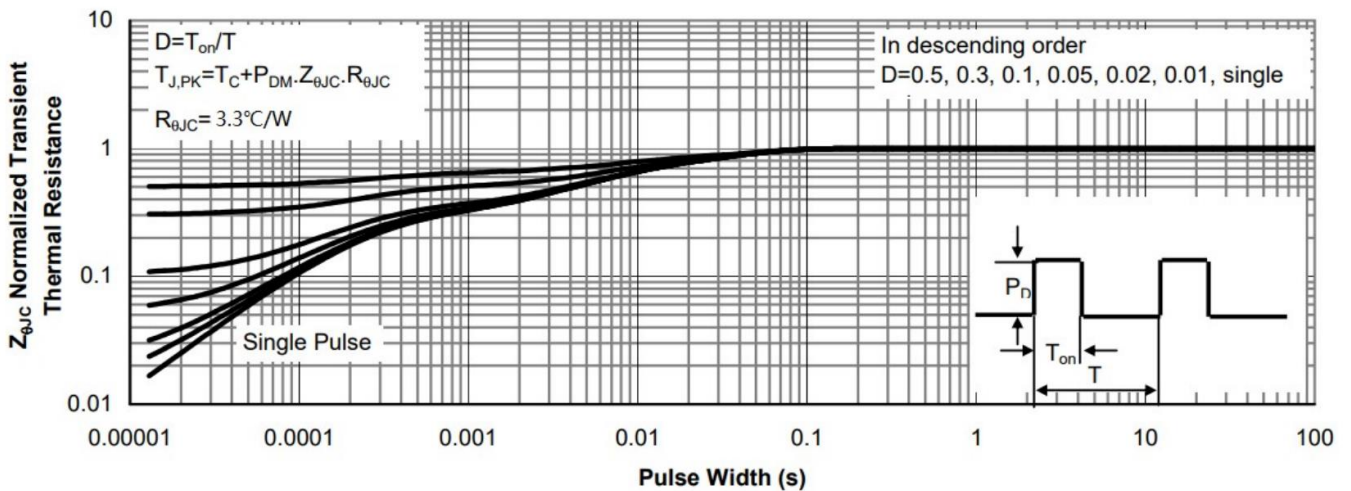
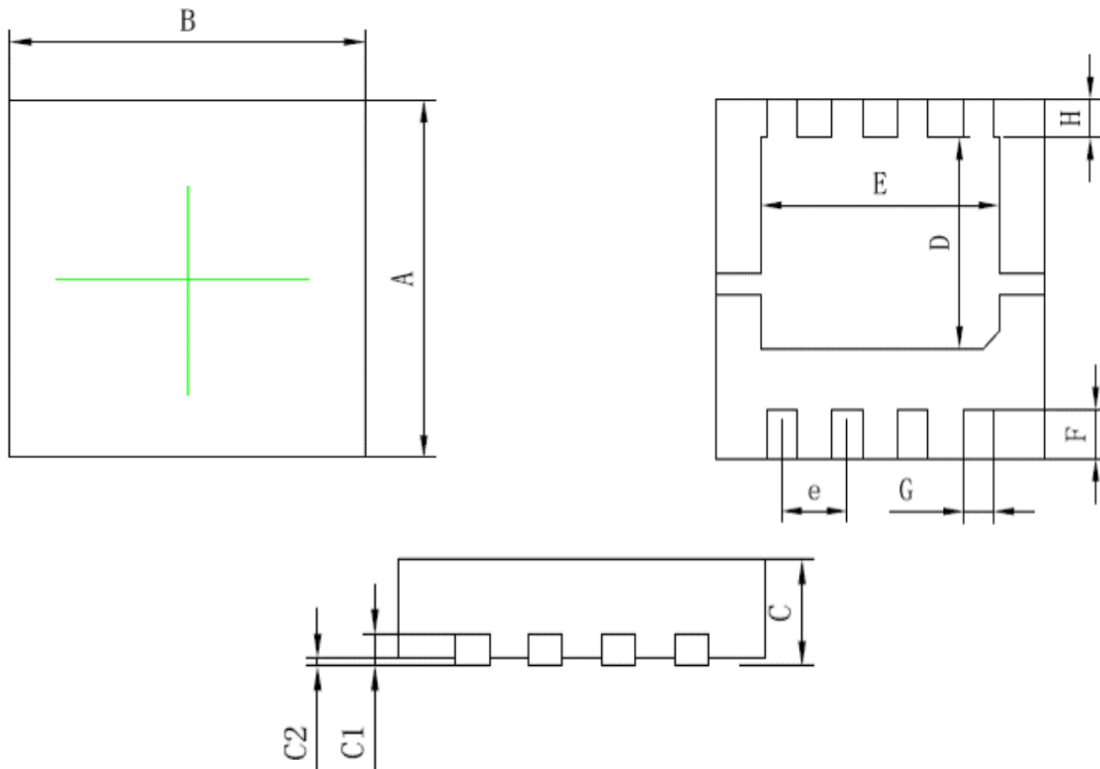


Figure 9. Normalized Maximum Transient Thermal Impedance

DFN3.3X3.3-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	3.150	3.350	0.124	0.132
B	3.150	3.350	0.124	0.132
C	0.700	1.000	0.027	0.039
C1	0.200 BSC		0.008 BSC	
C2	0.100 Max		0.004 Max	
D	1.800	2.000	0.071	0.079
E	2.200	2.500	0.087	0.098
F	0.350	0.550	0.013	0.022
G	0.200	0.400	0.007	0.016
H	0.350 BSC		0.014 BSC	
e	0.650 BSC		0.026 BSC	