

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$	$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
30V	18mΩ@10V	6A	-30V	45mΩ@-10V	-5A
	30mΩ@4.5V			65mΩ@-4.5V	

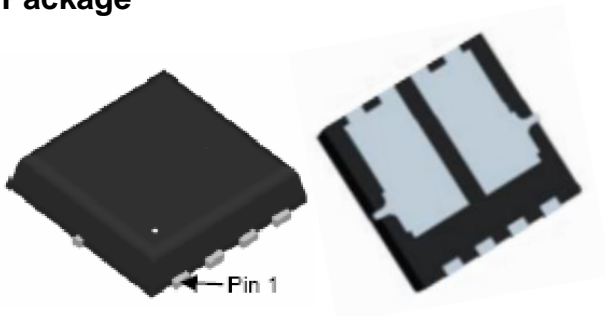
### Feature

- High density cell design for ultra low Rdson
- Trench Power LV MOSFET technology
- Excellent package for heat dissipation

### Application

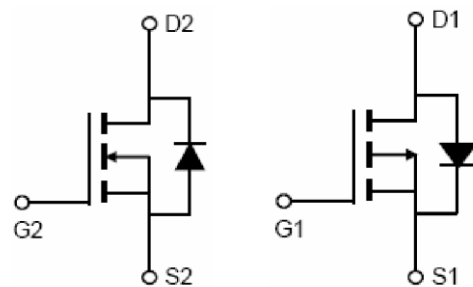
- Wireless charger
- Load switching
- Power management

### Package



DFN3.3X3.3-8L

### Circuit diagram



### Marking



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

Parameter	Symbol	N-Channel	p-Channel	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	-30	V
Gate-Source Voltage	V <sub>GS</sub>	±20	±20	V
Continuous Drain Current	I <sub>D</sub>	6	-5	A
Pulsed Drain Current	I <sub>DM</sub>	24	-20	A
Power Dissipation	P <sub>D</sub>	2	2	W
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	62.5	62.5	°C/W
Junction Temperature	T <sub>J</sub>	150	150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	-55 ~ +150	°C

### N-CH Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.0	1.5	2.2	V
Drain-source on-resistance <sup>1)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 6A		14	18	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5A		23	30	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz		526		pF
Output Capacitance	C <sub>oss</sub>			78		
Reverse Transfer Capacitance	C <sub>rss</sub>			69		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 5.6A		12		nC
Gate-Source Charge	Q <sub>gs</sub>			2.4		
Gate-Drain Charge	Q <sub>gd</sub>			2.3		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 5.6A, R <sub>GEN</sub> = 3Ω		5		nS
Turn-on rise time	t <sub>r</sub>			28		
Turn-off delay time	t <sub>d(off)</sub>			13		
Turn-off fall time	t <sub>f</sub>			21.6		
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage	V <sub>DS</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 6A			1.2	V

### P-CH Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1.0	-1.5	-2.4	V
Drain-source on-resistance <sup>1)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -5A		35	45	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.5A		49	65	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	C <sub>iSS</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1MHz		719		pF
Output Capacitance	C <sub>oSS</sub>			78		
Reverse Transfer Capacitance	C <sub>rSS</sub>			64		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -5.1A		14		nC
Gate-Source Charge	Q <sub>gs</sub>			3		
Gate-Drain Charge	Q <sub>gd</sub>			2		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -5.1A, R <sub>GEN</sub> = 3Ω		7.4		nS
Turn-on rise time	t <sub>r</sub>			37		
Turn-off delay time	t <sub>d(off)</sub>			31.6		
Turn-off fall time	t <sub>f</sub>			42		
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage	V <sub>DS</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -5A			-1.2	V

Notes:

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

Guaranteed by design, not subject to production testing.

## N- Channel Typical Characteristics

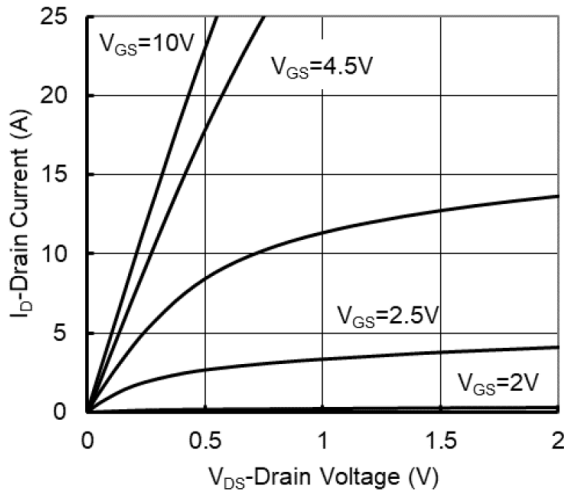


Figure1. Output Characteristics

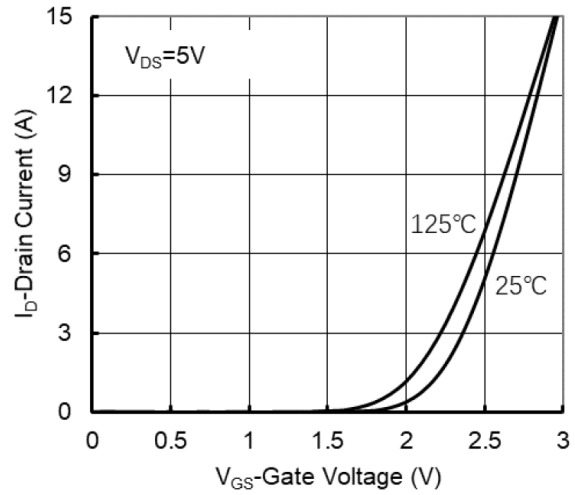


Figure2. Transfer Characteristics

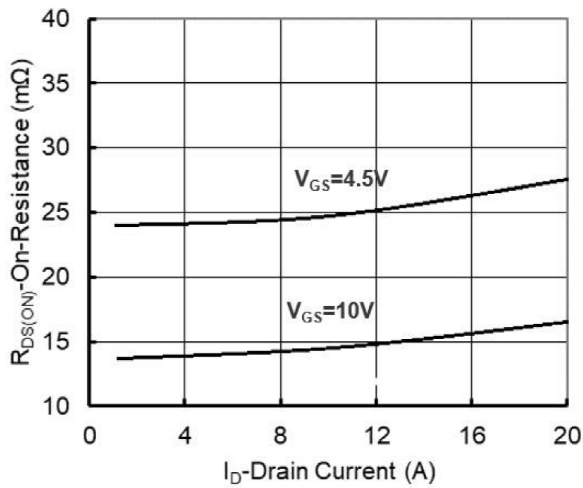


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

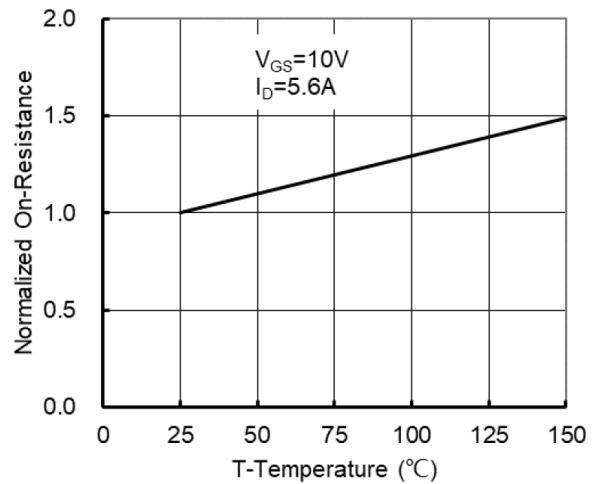


Figure 4: On-Resistance vs. Junction Temperature

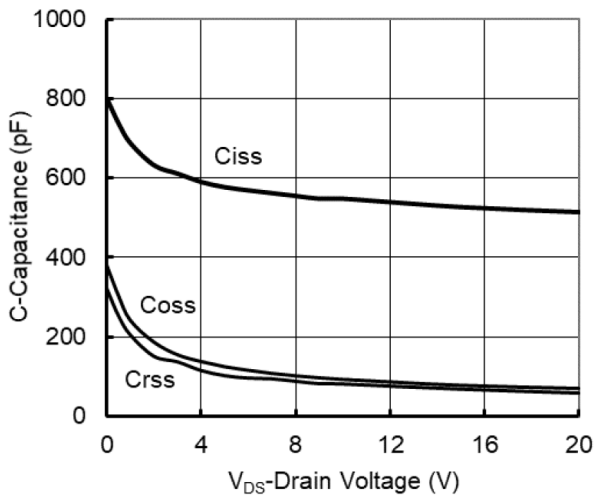


Figure5. Capacitance Characteristics

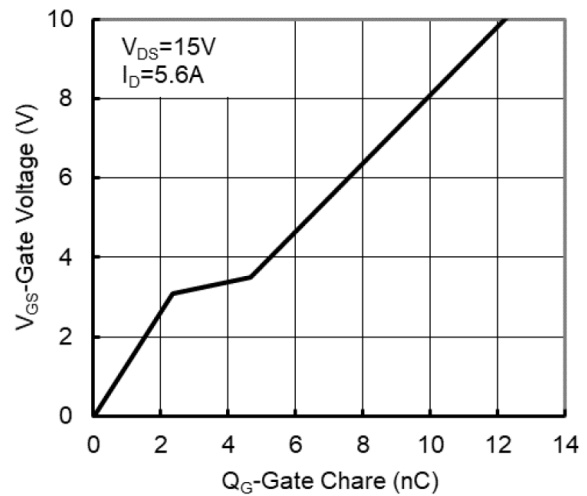


Figure6. Gate Charge

## N- Channel Typical Characteristics

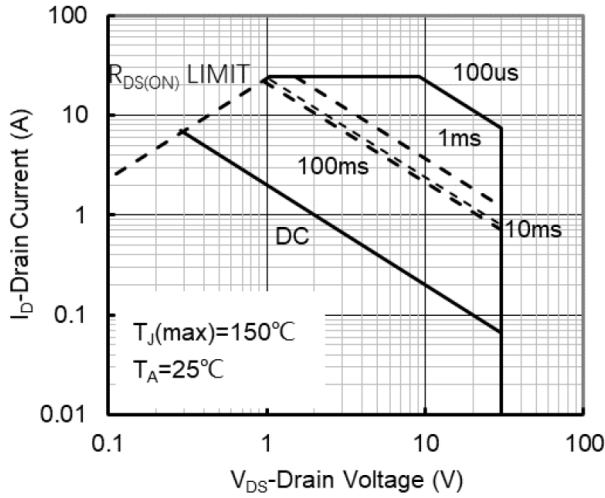


Figure7. Safe Operation Area

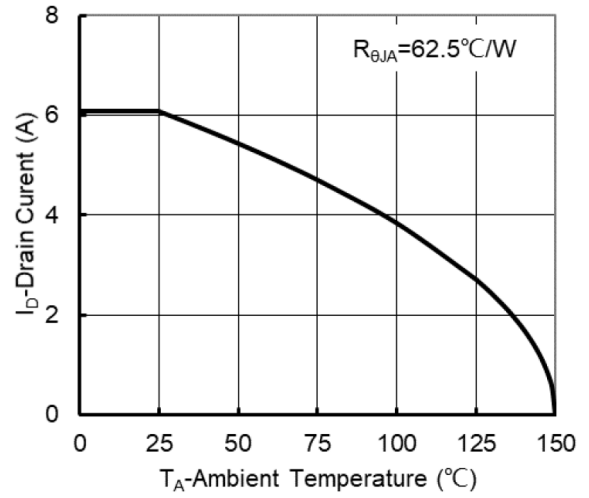


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

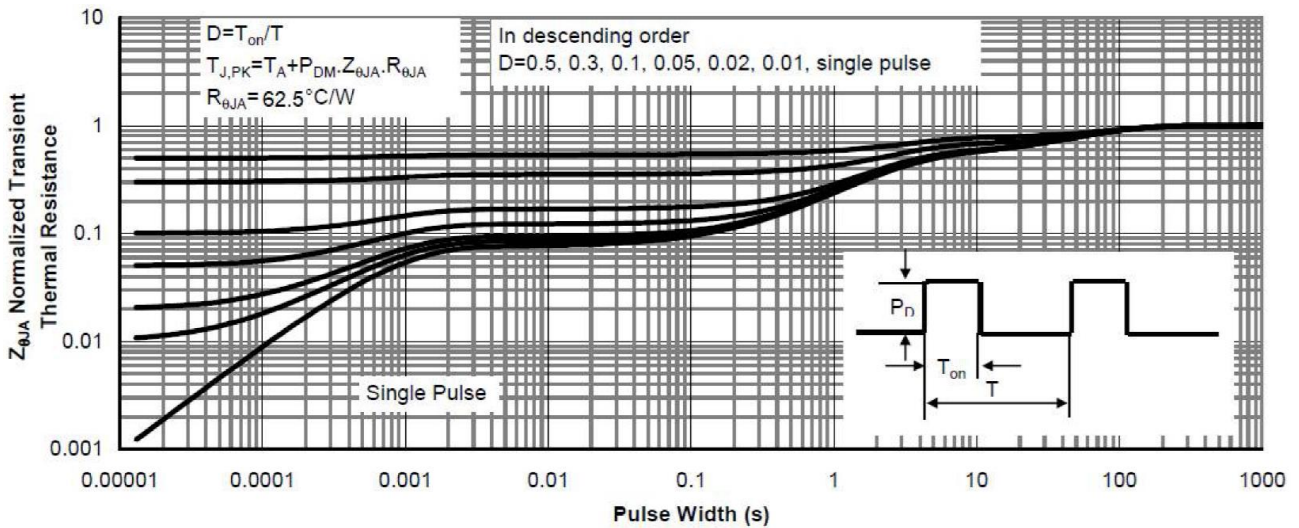


Figure9. Normalized Maximum Transient Thermal Impedance

## P- Channel Typical Characteristics

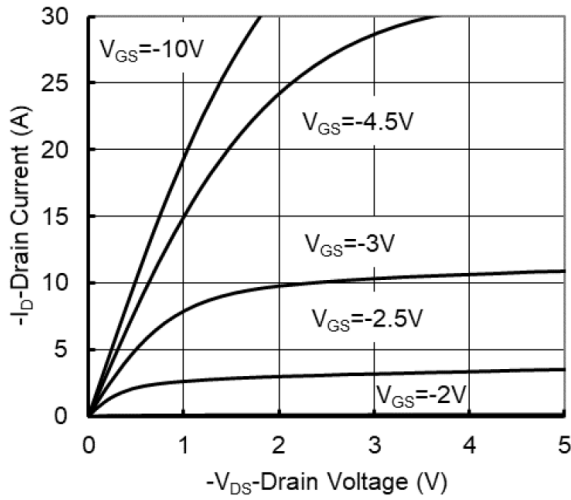


Figure1. Output Characteristics

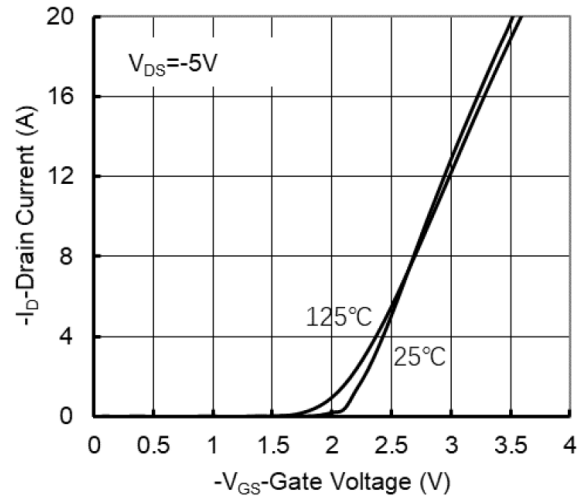


Figure2. Transfer Characteristics

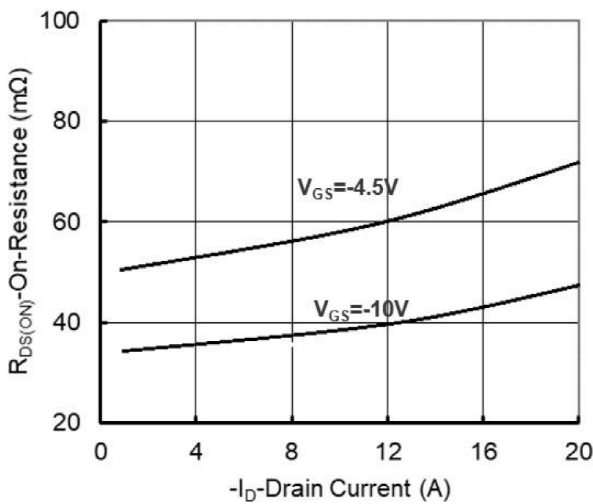


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

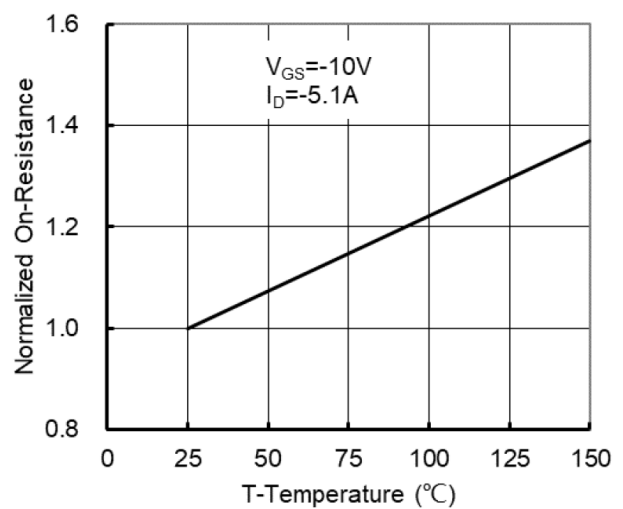


Figure 4: On-Resistance vs. Junction Temperature

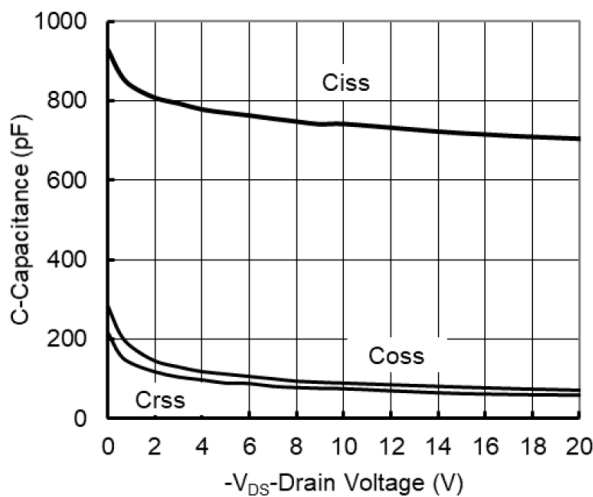


Figure5. Capacitance Characteristics

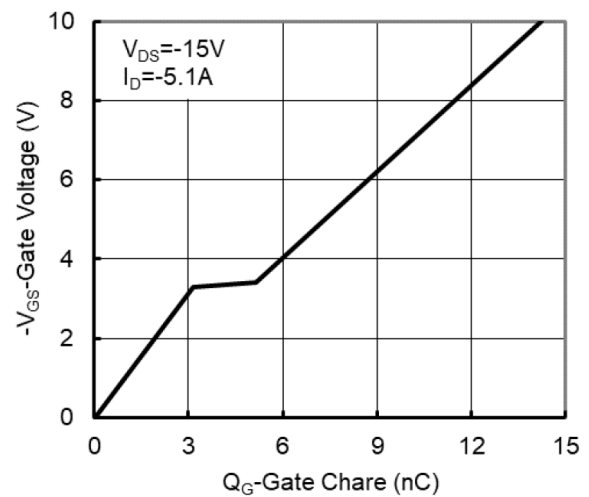


Figure6. Gate Charge

## P- Channel Typical Characteristics

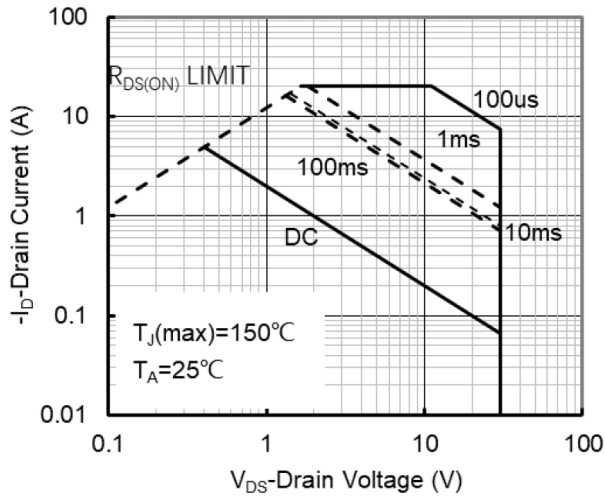


Figure7. Safe Operation Area

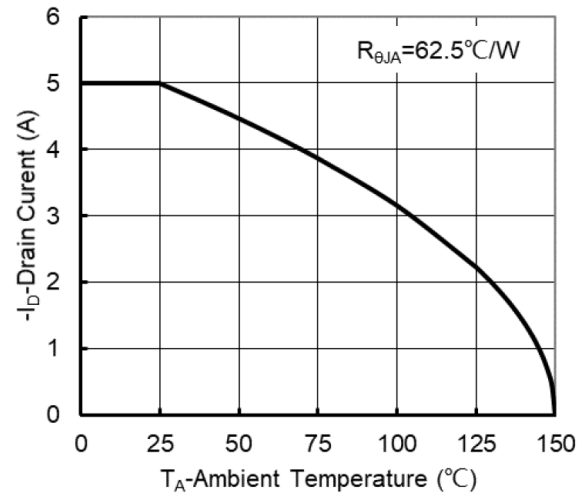


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

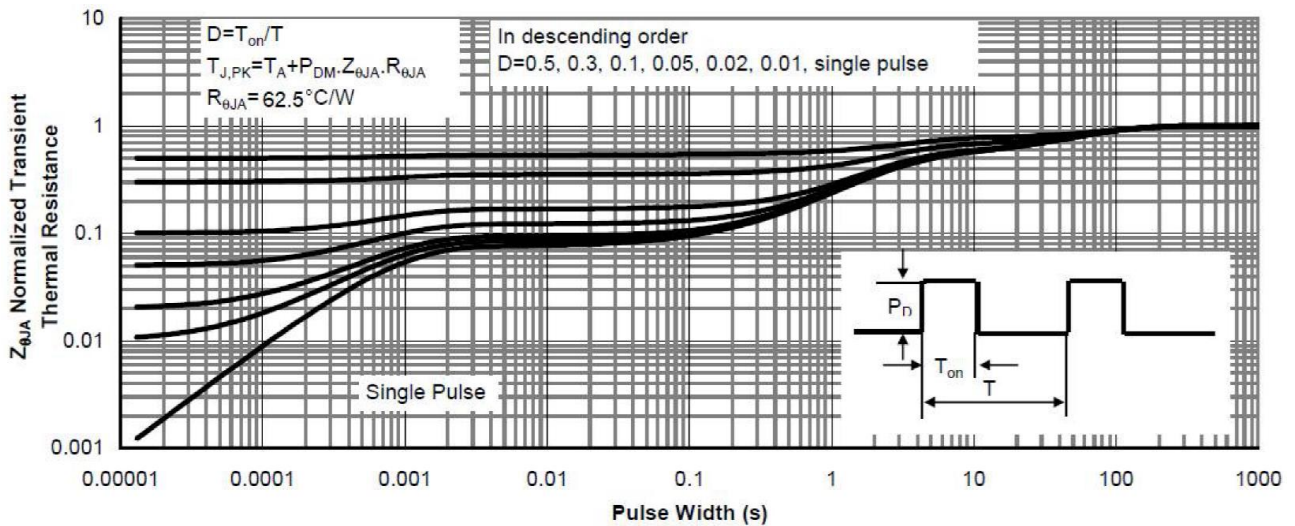
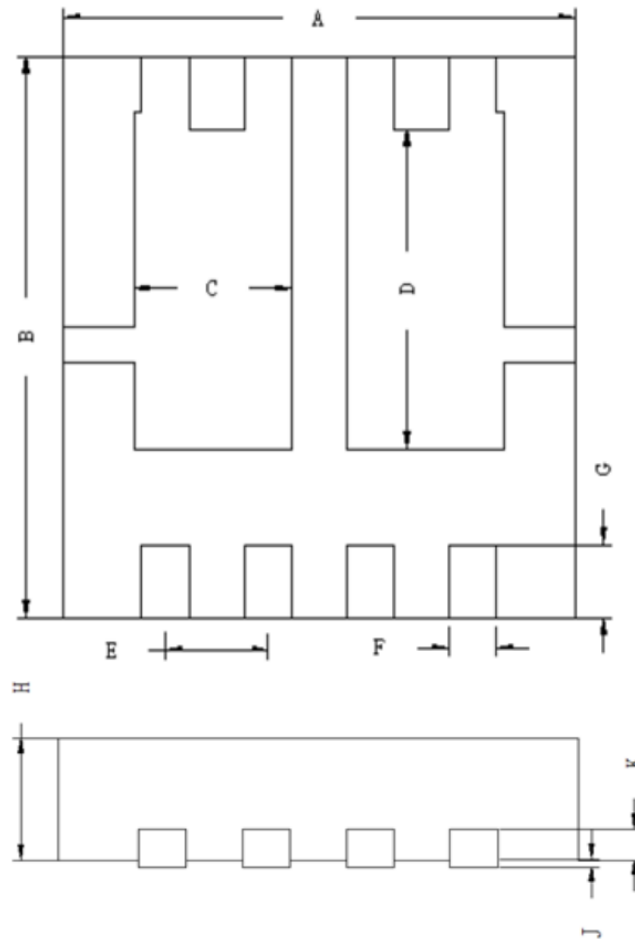


Figure9. Normalized Maximum Transient Thermal Impedance

### 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	0.900	1.100	0.035	0.044
D	1.750	1.950	0.068	0.077
E	0.650 BSC		0.026 BSC	
F	0.200	0.400	0.007	0.016
G	0.325	0.525	0.012	0.021
H	0.700	0.900	0.027	0.036
J	0.100 Max		0.004 Max	
K	0.200 REF		0.008 REF	