



N-Channel Enhancement Mode Field Effect Transistor

Product Summary

V_{DS}	60V
I_D (Silicon limited)	62A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	7.5 mohm
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	10 mohm
100% EAS Tested	

General Description

Split Gate Trench MOSFET technology
Excellent package for heat dissipation
High density cell design for low $R_{DS(ON)}$

-0 Flammability Rating

halogen Free

Applications

DC-DC Converters
Power management functions
Industrial and Motor Drive application

Absolute Maximum Ratings ($T_A=25$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	60	V
Gate-source Voltage		V_{GS}	20	V
Drain Current (Silicon limited)	$T_A=25^{\circ}C$	I_D	12	A
	$T_A=100^{\circ}C$		7.5	
	$T_C=25^{\circ}C$		62	
	$T_C=100^{\circ}C$		39	



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Electrical Characteristics (T_J=25 unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	T _J =25		1	
			T _J =55		5	
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 =250	1.2	1.7	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D =20A		5.8	7.5	m
		V _{GS} = 4.5V, I _D =10A		7.3	10	
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V		0.85	1.3	V
Maximum Body-Diode Continuous Current	I _S				62	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =35V, V _{GS} =0V, f=1MHZ		2000		pF
Output Capacitance	C _{oss}			390		
Reverse Transfer Capacitance	C _{rss}			13		
Gate Resistance	R _g	f=1MHZ, Open drain		1.6		
Switching Parameters						
Total Gate Charge	Q _g (10V)	V _{DS} =30V, I _D =20A		34		nC
Total Gate Charge	Q _g (4.5V)			15.8		
Gate-Source Charge	Q _{gs}			7.8		
Gate-Drain Charge	Q _{gd}			5.2		
Reverse Recovery Charge	Q _{rr}	I _F =20A, di/dt=200A/us		36		
Reverse Recovery Time	t _{rr}			27		
Turn-on Delay Time						

V_{GS}=10V, V_{DD}=30V, I_D=12A
R_{GEN}=3

ns



Typical Performance Characteristics

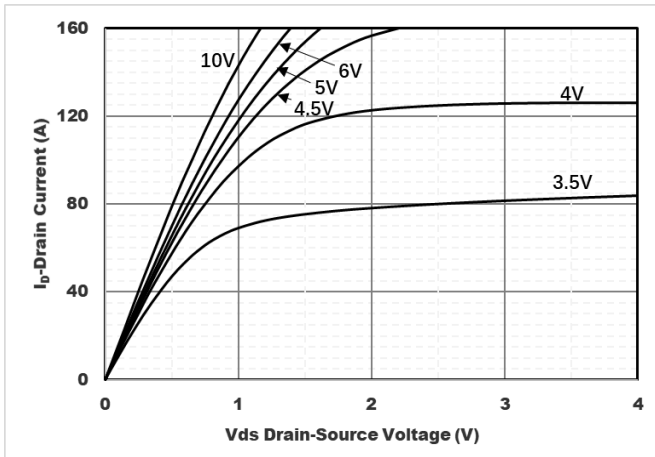


Figure1. Output Characteristics

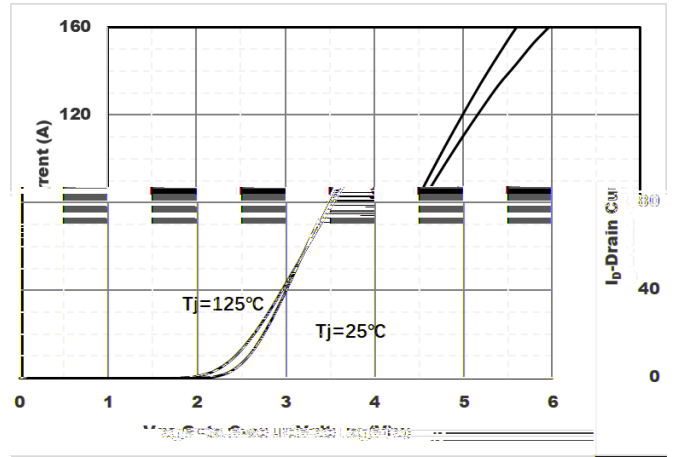


Figure2. Transfer Characteristics

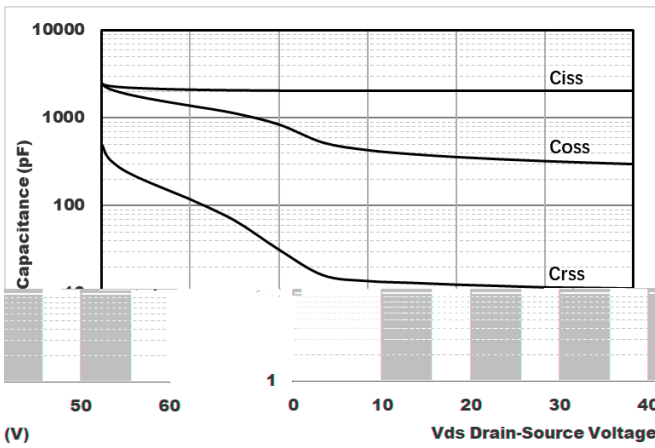


Figure3. Capacitance Characteristics

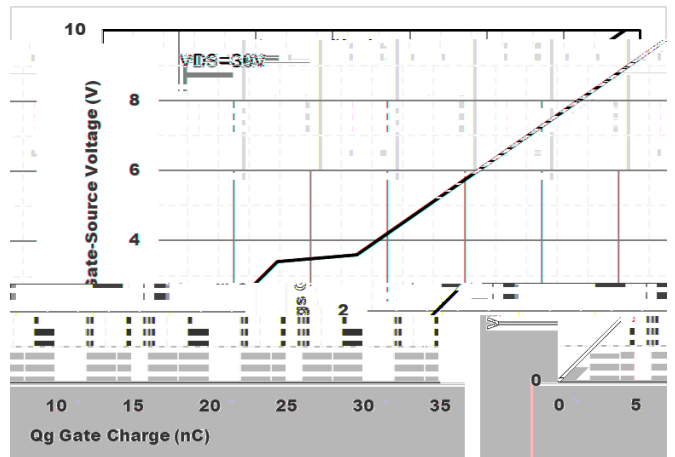


Figure4. Gate Charge

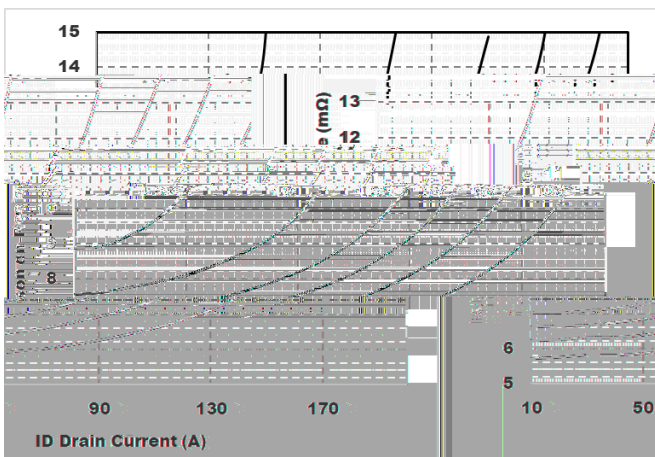


Figure5. Drain-Source on Resistance

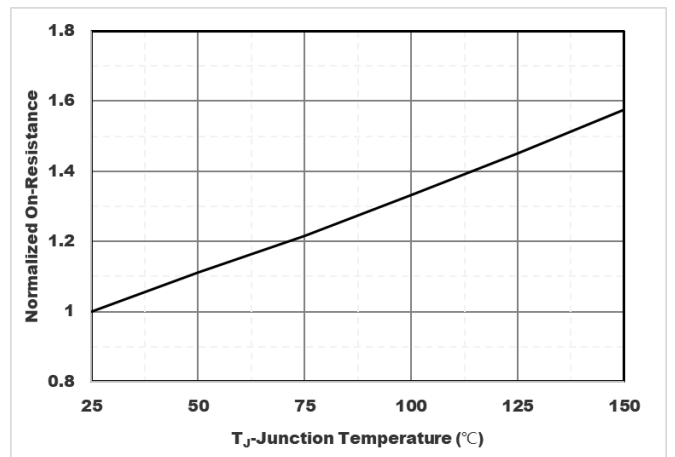


Figure6. Normalized On-Resistance



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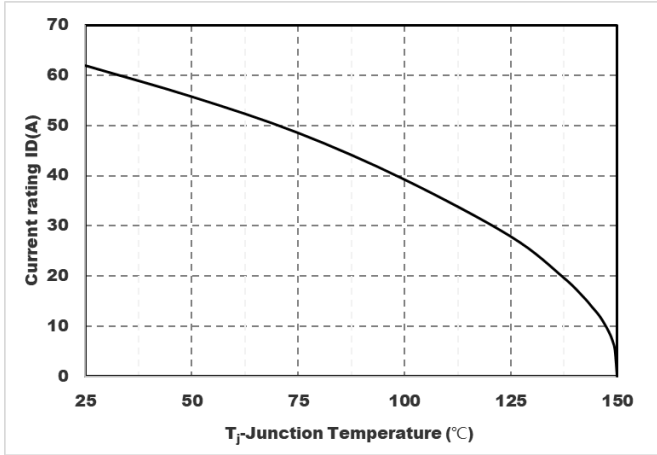


Figure7. Drain current

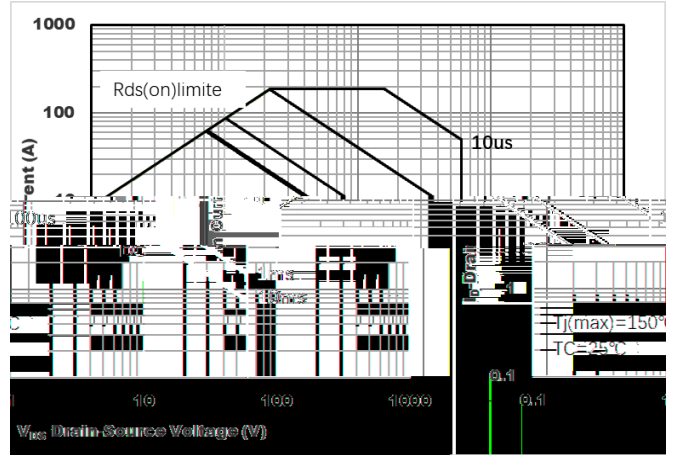


Figure8. Safe Operation Area

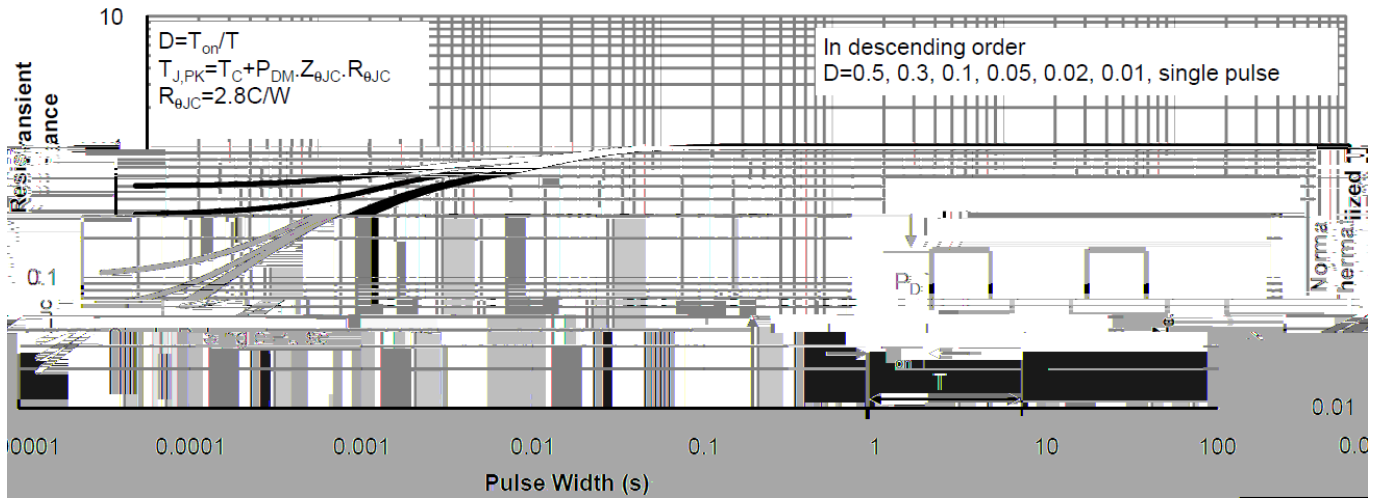
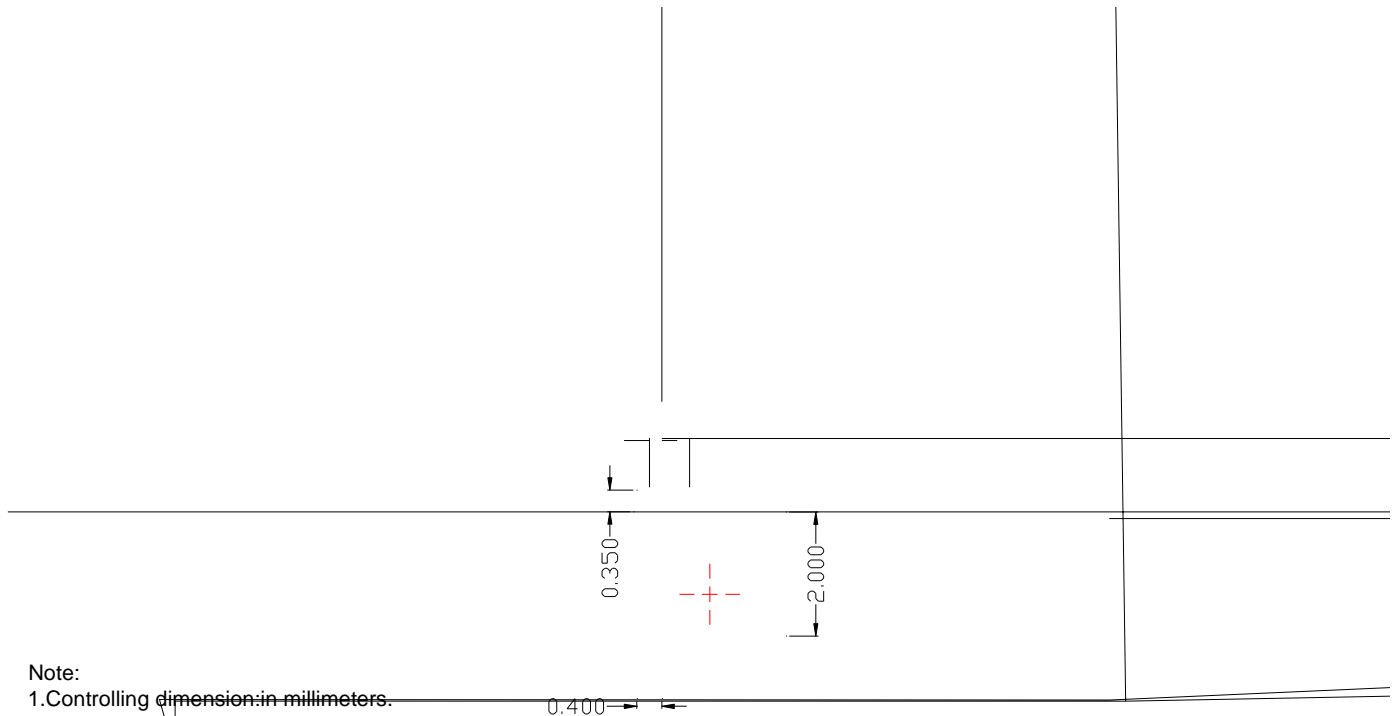


Figure8. Normalized Maximum Transient Thermal Impedance



DFN3333-8L Package information



Note:

- 1. Controlling dimension: in millimeters.
- 2. General tolerance: ± 0.10 mm.
- 3. The pad layout is for reference purposes only.

Suggested Solder Pad Layout
Top View



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