P-Channel Enhancement Mode MOSFET

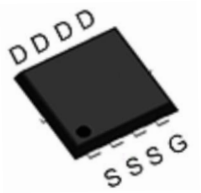
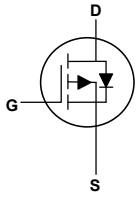
Features

- Advanced Trench technology
- High Speed Power Switching
- Reliable and Rugged
- ROHS Compliant
- 100% Avalanche Tested

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description

DFN3*3-8 EP1	Symbol
	

V_{DSS}	-30	V
$R_{DS(ON)-Typ}$	11	mΩ
I_D	-39	A

Absolute Maximum Ratings (T_A=25℃, Unless Otherwise Noted)

Symbol	Parameter		P-Channel	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±25	V
T_J	Maximum Junction Temperature		-55 to 150	℃
T_{STG}	Storage Temperature Range		-55 to 150	℃
I_{DM} ①	Pulse Drain Current Tested		-70	A
I_D	Continuous Drain Current	T_C=25℃	-39	A
P_D	Maximum Power Dissipation	T_C=25℃	32.9	W
E_{AS}	Avalanche Energy, Single pulse		81	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	75	℃/W
$R_{\theta JC}$	Thermal Resistance-Junction to Case	3.8	℃/W

Note ①: Max. current is limited by bonding wire.

Note ②: UIS tested and pulse width are limited by maximum junction temperature 150℃.

Note ③: Surface Mounted on 1in^2 FR-4 board with 1oz.

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Electrical Characteristics (T_J=25℃, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0V	---	---	-1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1.3	---	-2.3	V
I_{GSS}	Gate Leakage Current	V_{GS}=±25V, V_{DS}=0V	---	---	±10	uA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=-10V, I_D=-20A	---	11	14	mΩ
		V_{GS}=-4.5V, I_D=-10A	---	18	24	mΩ
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, Freq.=1MHz	---	1380	---	pF
C_{oss}	Output Capacitance		---	280	---	
C_{rss}	Reverse Transfer Capacitance		---	217	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DD}=-15V , V_{GS}=-10V , R_G=6Ω, R_L=15Ω,I_D=-1A	---	11	---	nS
T_r	Turn-on Rise Time		---	11	---	
$T_{d(off)}$	Turn-off Delay Time		---	101	---	
T_f	Turn-off Fall Time		---	60	---	
Q_g	Total Gate Charge	V_{DS}=-15V , V_{GS}=-10V , I_D=-20A	---	30	---	nC
Q_{gs}	Gate-Source Charge		---	1.2	---	
Q_{gd}	Gate-Drain Charge		---	11	---	
Source-Drain Characteristics						
V_{SD}④	Diode Forward Voltage	V_{GS}=0V , I_S=-1A , T_J=25℃	---	-0.7	-1.0	V
t_{rr}	Reverse Recovery Time	I_F=-20A , di/dt=100A/μs, T_J=25℃	---	20	---	nS
Q_{rr}	Reverse Recovery Charge		---	8	---	nC

Note ④: Pulse test (pulse width 300us, duty cycle 2%).

Note ⑤ : Guaranteed by design, not subject to production testing.

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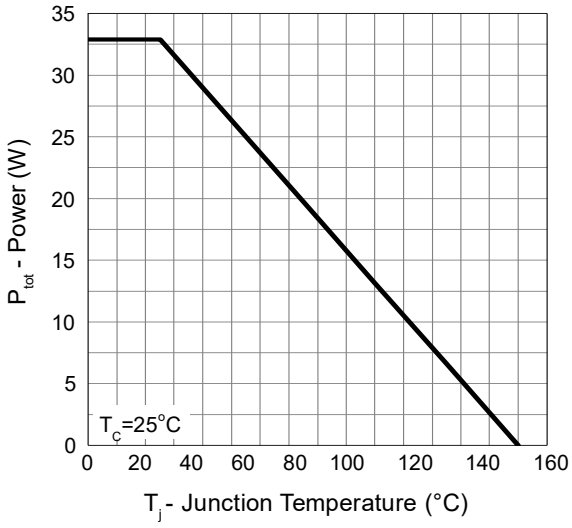
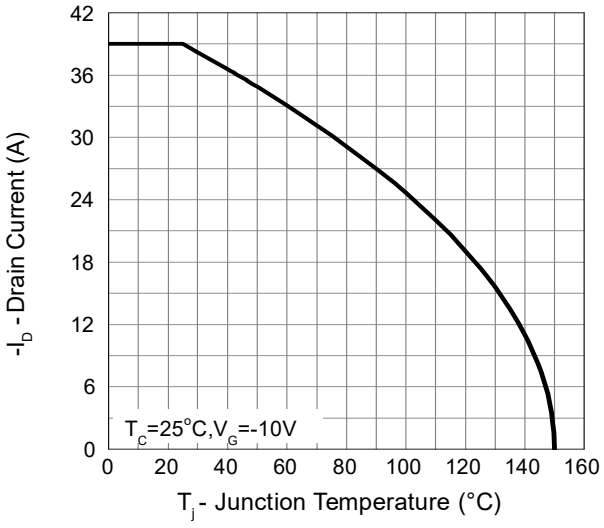
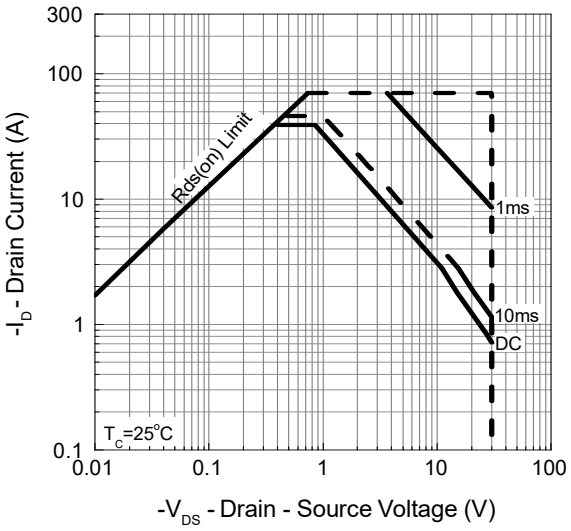
Typical Characteristics



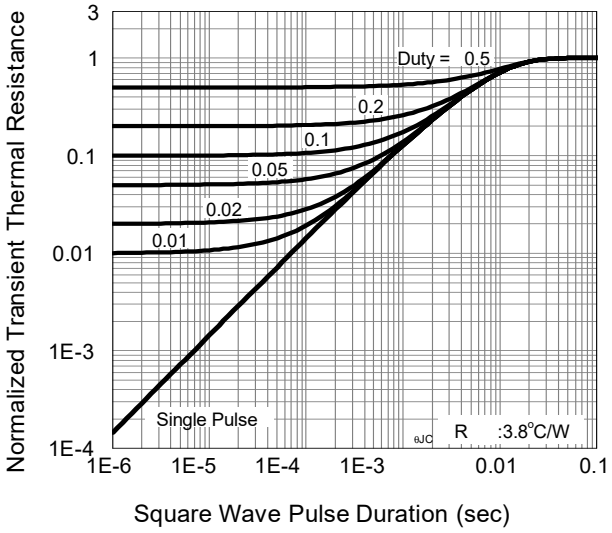
Power Dissipation



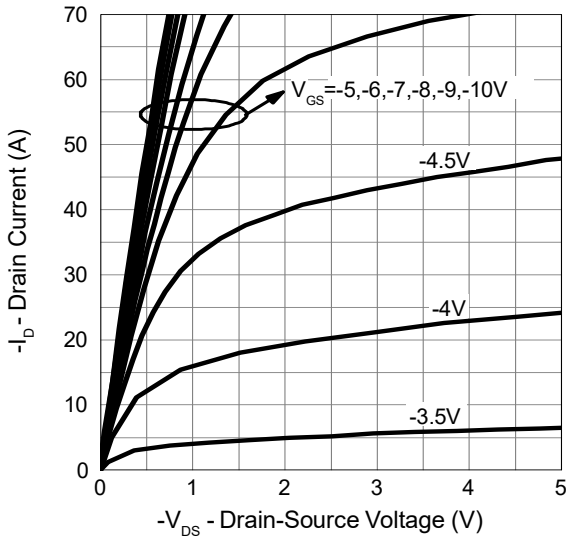
Drain Current



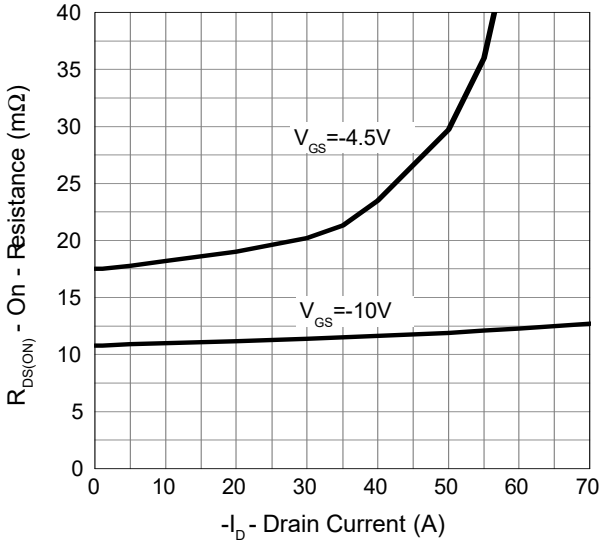
Safe Operation Area



Thermal Transient Impedance



Output Characteristics



Drain-Source On Resistance

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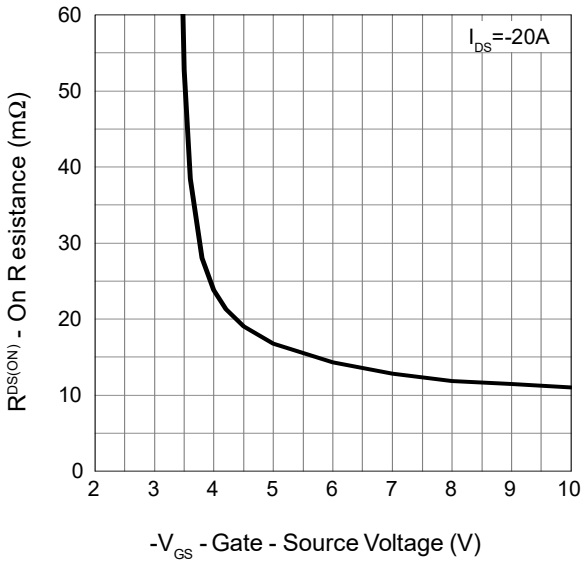
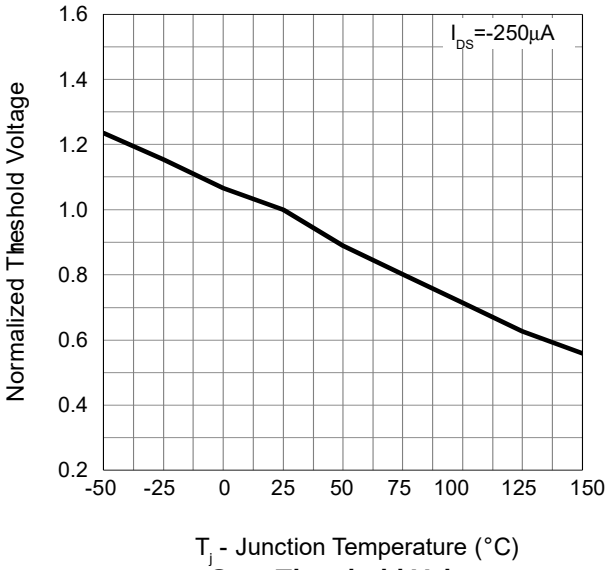
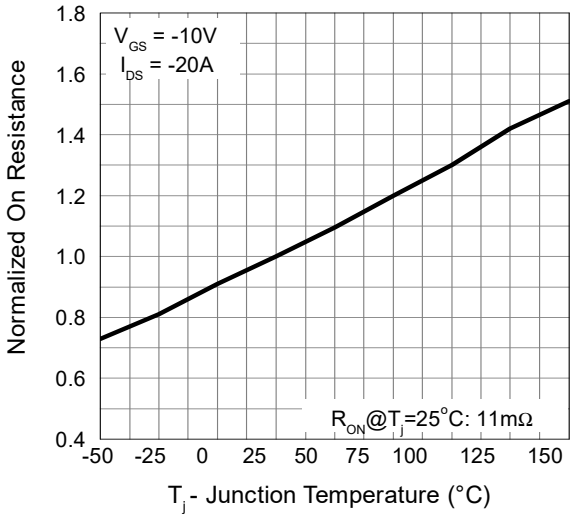


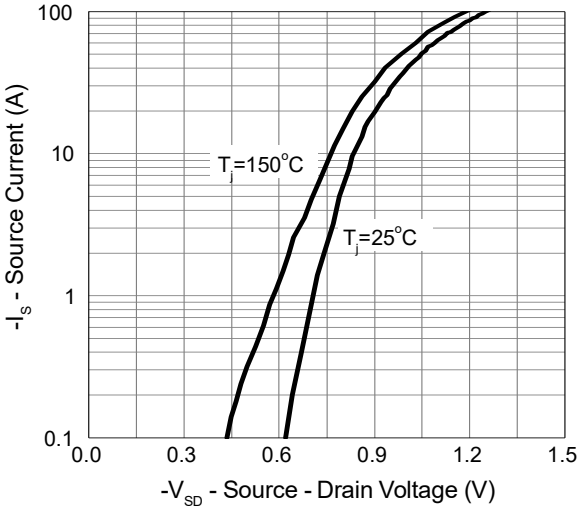
Gate-Source On Resistance



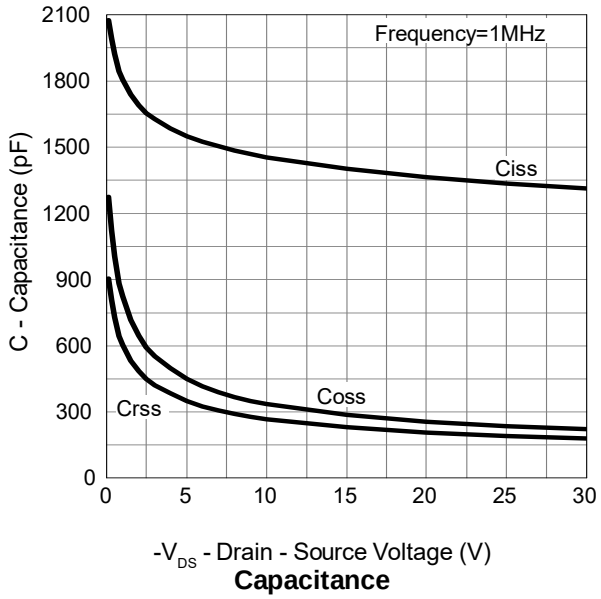
Gate Threshold Voltage



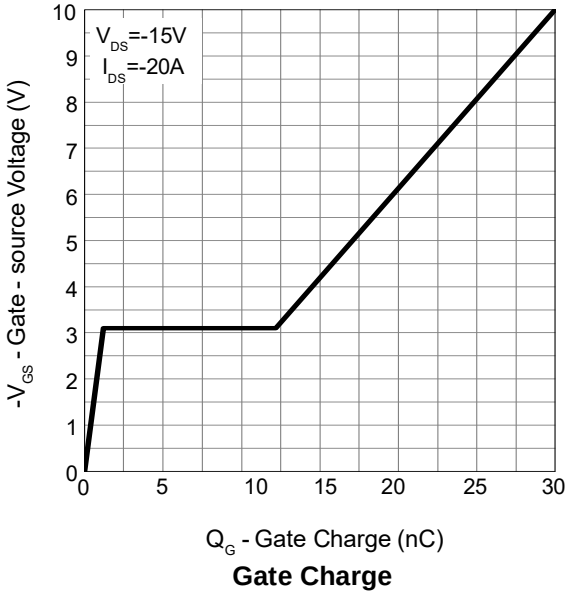
Drain-Source On Resistance



Source-Drain Diode Forward

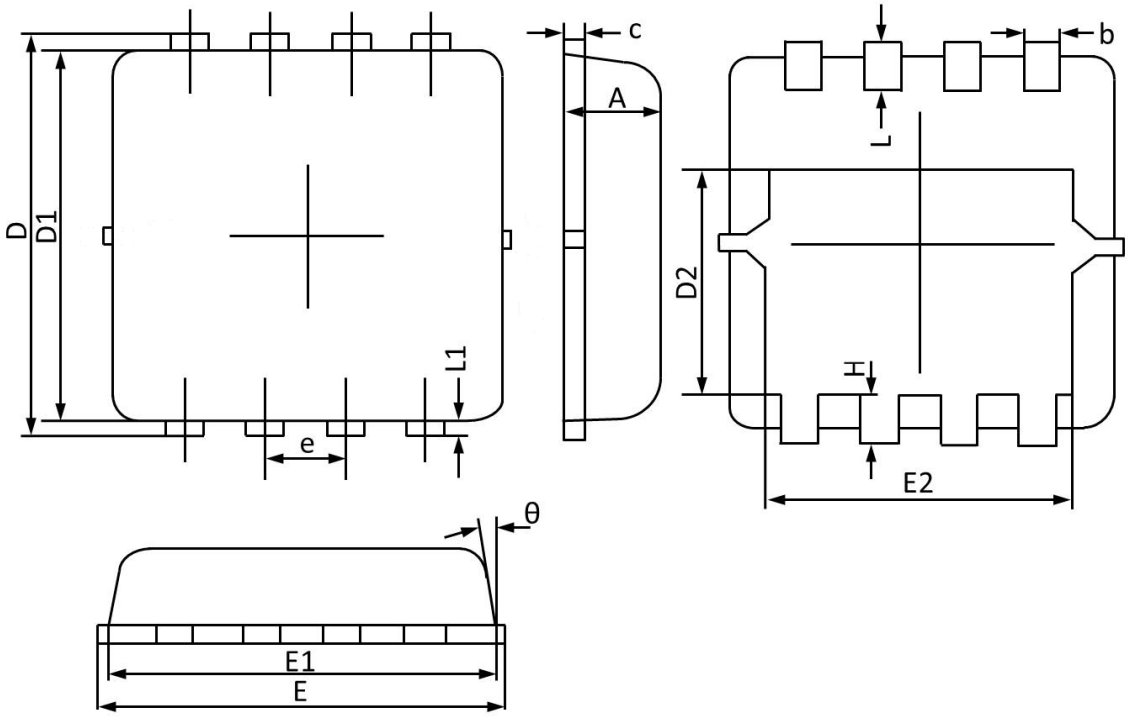


Capacitance



Gate Charge

DFN3*3-8 EP1 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.70	0.75	0.85	E1	2.90	3.10	3.25
b	0.24	0.30	0.35	E2	2.35	2.50	2.60
c	0.10	0.17	0.25	e	0.65 BSC		
D	3.10	3.30	3.45	H	0.30	0.40	0.50
D1	2.90	3.05	3.20	L	0.30	0.40	0.50
D2	1.45	1.70	1.95	L1	--	0.13	--
E	3.05	3.25	3.40	θ	0°		14°