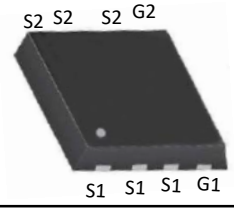
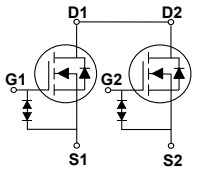
Common-Drain Dual N-Channel Enhancement Mode MOSFET

Features

- Fast switching speed
- Reliable and Rugged
- ROHS Compliant
- 100% Avalanche Tested

Pin Description

DFN3*3-8 EP1	Symbol
	

Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	18	V
$R_{DS(ON)-Typ}$	3.5	mΩ
I_D	55	A

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

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		18	V
V_{GSS}	Gate-Source Voltage		±10	V
T_J	Maximum Junction Temperature		-55 to 150	℃
T_{STG}	Storage Temperature Range		-55 to 150	℃
E_{AS}	Single Pulse Avalanche Energy		100	mJ
I_{DM} ①	Pulse Drain Current Tested		165	A
I_D	Continuous Drain Current	T_C=25°C	55	A
	Continuous Drain Current	T_C=100°C	24	A
P_D	Maximum Power Dissipation	T_C=25°C	35	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$ ③	Thermal Resistance-Junction to Ambient	78	℃/W
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	3.5	℃/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	18	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=14.4V, V_{GS}=0V	---	---	1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	0.5	---	1.0	V
I_{GSS}	Gate Leakage Current	V_{GS}=±10V, V_{DS}=0V	---	---	±10	uA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=4.5V, I_D=13.5A	---	3.5	5.0	mΩ
		V_{GS}=2.5V, I_D=10A	---	4.5	6.0	
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=10V, Freq.=1.0MHz	---	3775	---	pF
C_{oss}	Output Capacitance		---	730	---	
C_{rss}	Reverse Transfer Capacitance		---	525	---	
$T_{d(on)}$	Turn-on Delay Time	V_{GS}=10V,V_{DD}=10V, I_D=1A,R_G=6Ω	---	14	---	nS
T_r	Turn-on Rise Time		---	14.5	---	
$T_{d(off)}$	Turn-off Delay Time		---	130	---	
T_f	Turn-off Fall Time		---	70	---	
Q_g	Total Gate Charge	V_{GS}=4.5V,V_{DD}=10V, I_D=13.5A	---	35	---	nC
Q_{gs}	Gate-Source Charge		---	4.7	---	
Q_{gd}	Gate-Drain Charge		---	11.5	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	I_S=2A, V_{GS}=0V	---	---	1.1	V
t_{rr}	Reverse recovery time	I_F=13.5A, diF/dt=100A/μs	---	18	---	ns
Q_{rr}	Reverse recovery charge		---	6.2	---	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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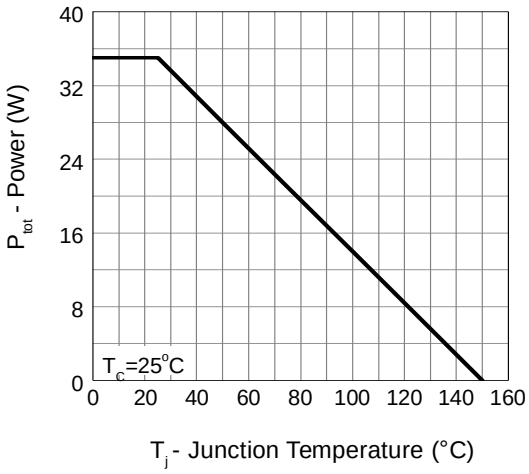
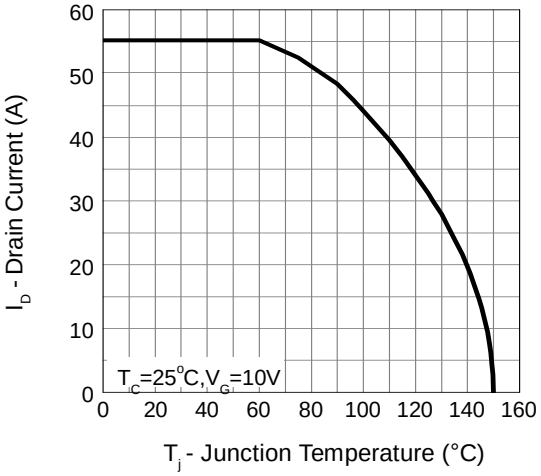
Typical Characteristics

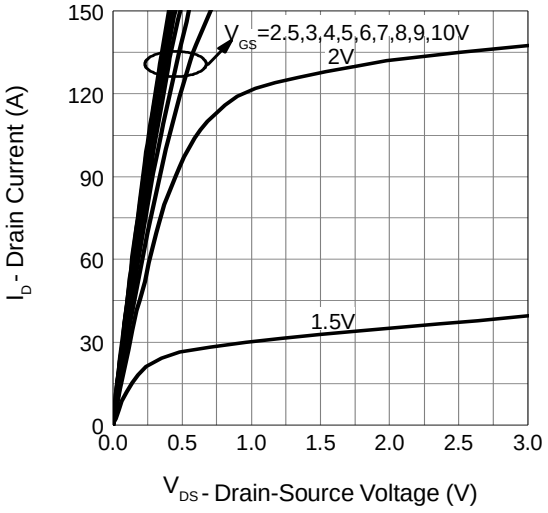
Power Dissipation



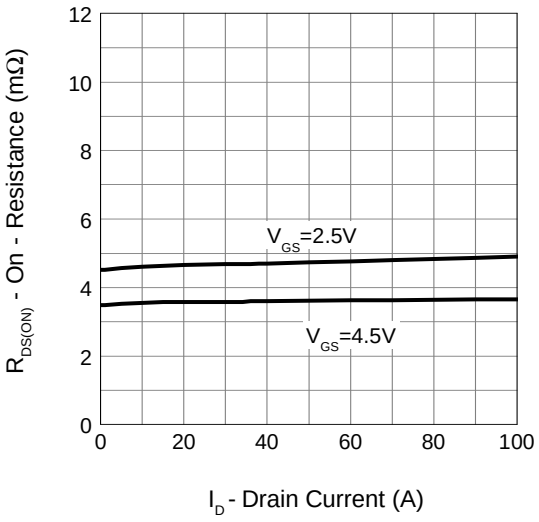
Drain Current



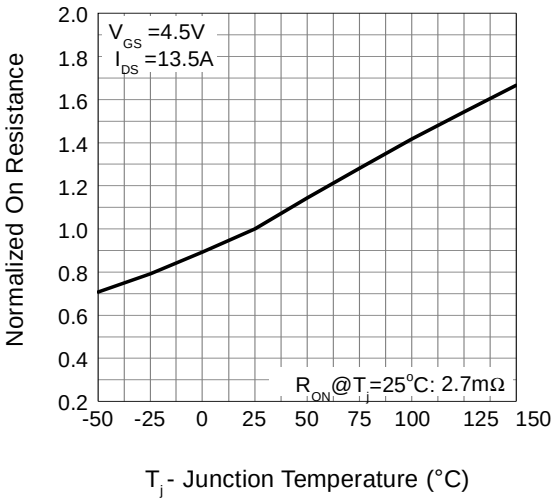
Output Characteristics



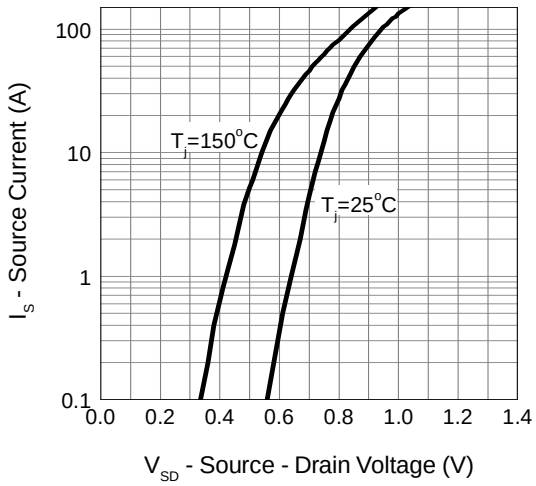
Drain-Source On Resistance



Drain-Source On Resistance



Source-Drain Diode Forward



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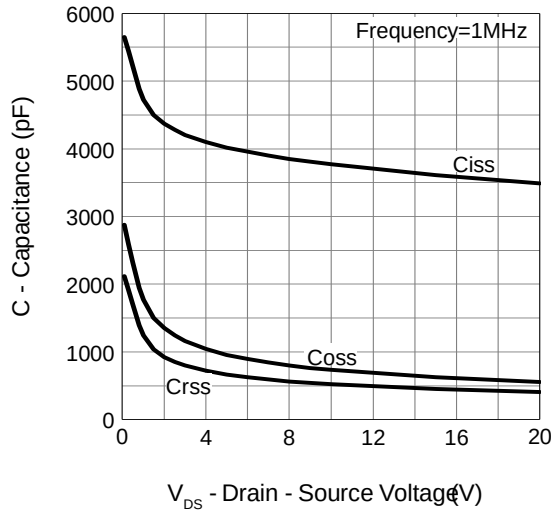
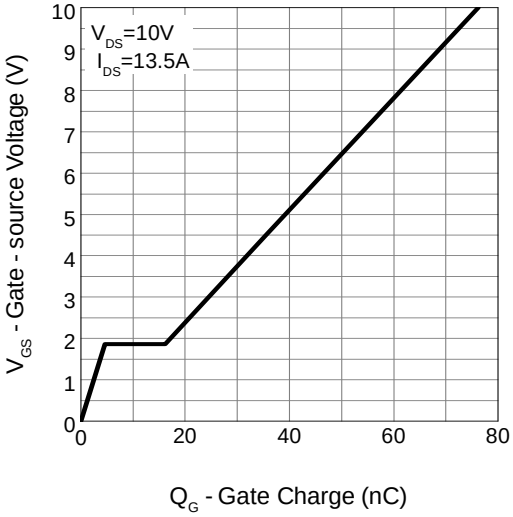
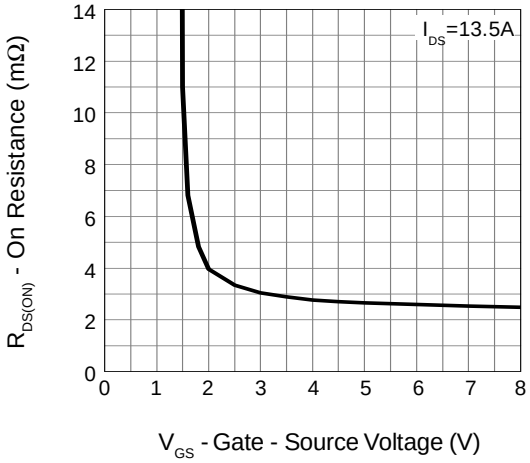
Capacitance



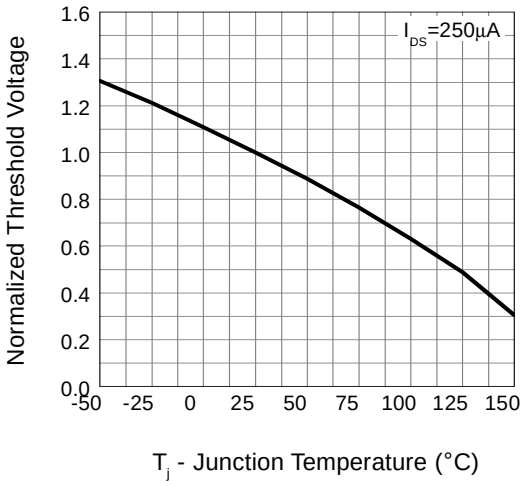
Gate Charge



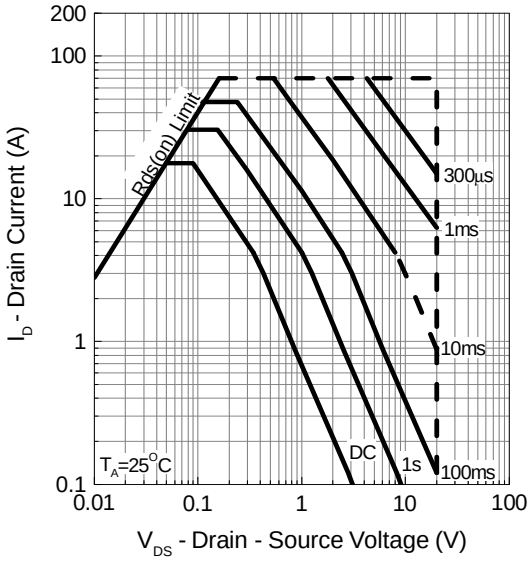
Gate-Source On Resistance



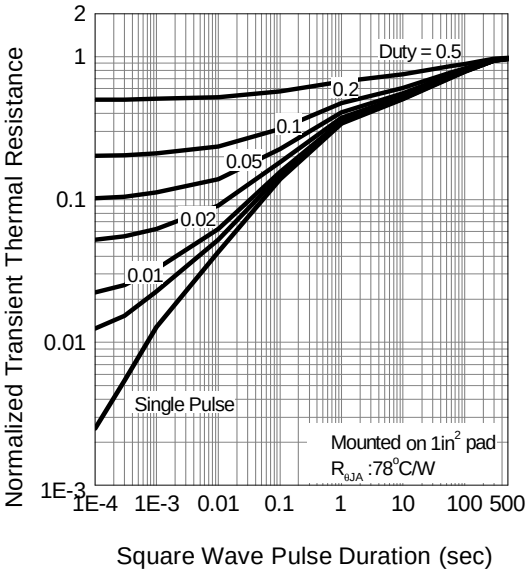
Gate Threshold Voltage



Safe Operation Area



Thermal Transient Impedance



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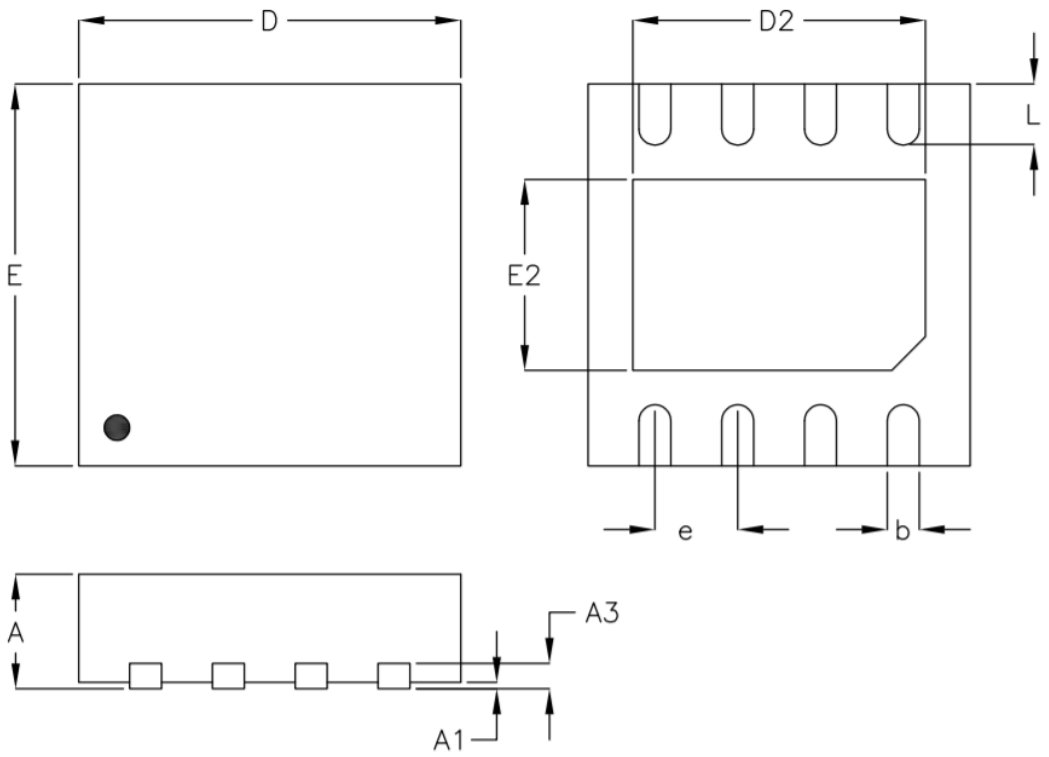
DFN3*3-8 EP1 Package Outline Data



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.70	0.75	0.80	**D2**	2.25	2.40	2.55
A1	0.00		0.05	**E**	2.90	3.00	3.10
A3	0.18	0.20	0.25	**E2**	1.50	1.65	1.75
b	0.25	0.30	0.35	**e**	0.65 BSC		
D	2.90	3.00	3.10	**L**	0.30	0.40	0.50