

Dual N-Channel Enhancement Mode MOSFET

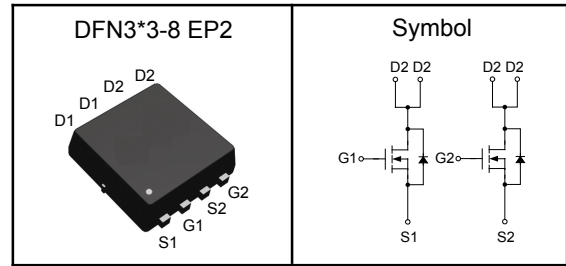
Features

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

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description



V_{DSS}	40	V
$R_{DS(ON)-Typ}$	14	mΩ
I_D	7.8	A

Absolute Maximum Ratings($T_C=25^{\circ}C$, Unless Otherwise Noted)

Symbol	Parameter	N-Channel	Unit
V_{DSS}	Drain-Source Voltage	40	V
V_{GSS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	-55 to 150	$^{\circ}C$
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
$I_{DM}^{①}$	Pulse Drain Current Tested	$T_A=25^{\circ}C$	A
I_D	Continuous Drain Current	7.8	A
P_D	Maximum Power Dissipation	$T_A=25^{\circ}C$	W
E_{AS}	Avalanche Energy, Single pulse	$L=0.1mH$	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	96	$^{\circ}C/W$

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

Note ② : UIS tested and pulse width are limited by maximum junction temperature $150^{\circ}C$.

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



Dual N-Channel Enhancement Mode MOSFET

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

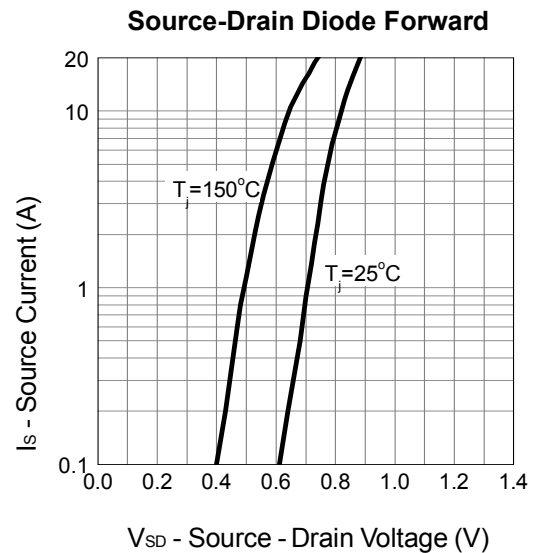
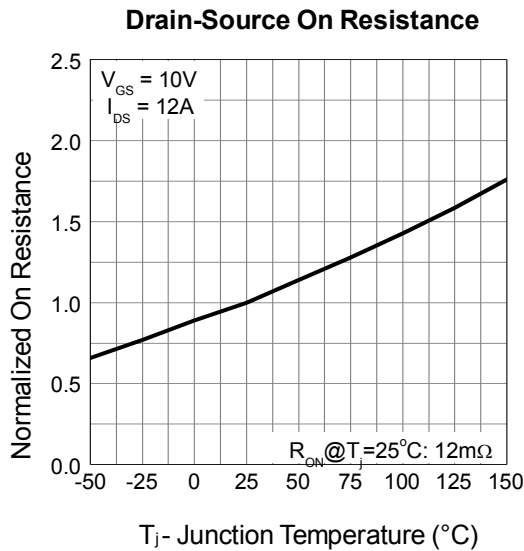
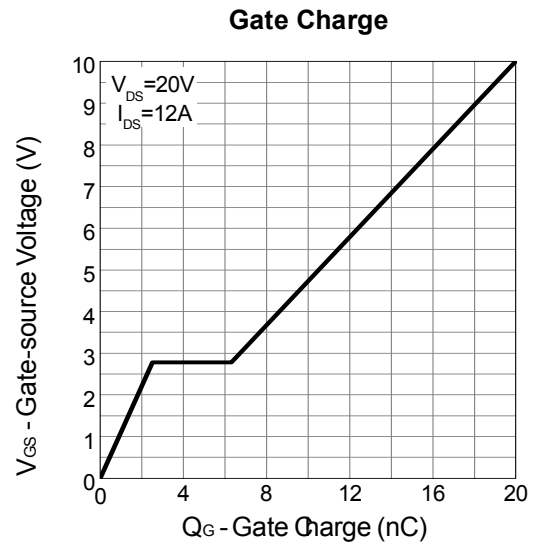
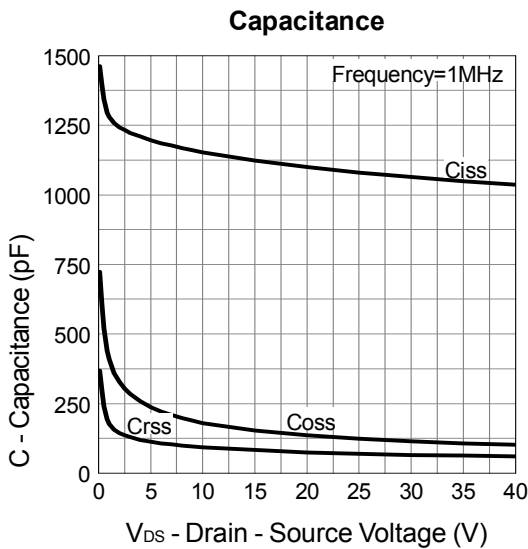
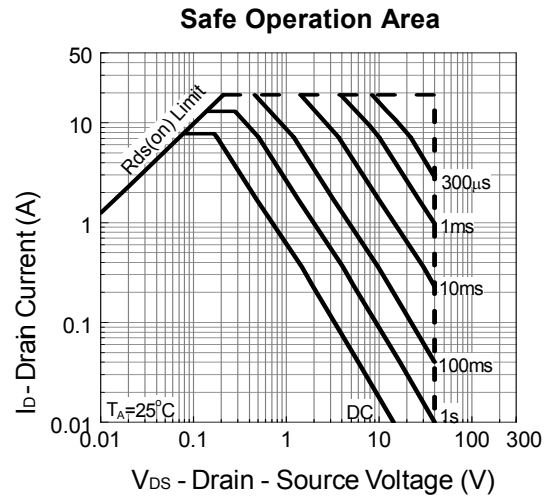
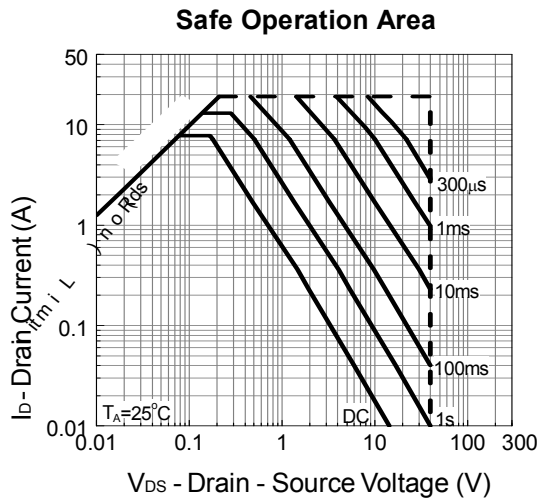
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	40	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =32V, V _{GS} =0V	---	---	1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.5	---	2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
R _{DS(ON)}	Drain-Source On-state Resistance	V _{GS} =10V, I _D =12A	---	14	17	mΩ
		V _{GS} =4.5V, I _D =10A	---	17	20	mΩ
Dynamic Characteristics ^⑤						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =20V, Freq.=1MHz	---	1095	---	pF
C _{oss}	Output Capacitance		---	135	---	
C _{rss}	Reverse Transfer Capacitance		---	74	---	
T _{d(on)}	Turn-on Delay Time	V _{DD} =30V,R _L =30Ω, I _{DS} =1A,V _{GEN} =10V, R _G =6Ω	---	8.2	---	nS
T _r	Turn-on Rise Time		---	6.8	---	
T _{d(off)}	Turn-off Delay Time		---	25.2	---	
T _f	Turn-off Fall Time		---	6.4	---	
Q _g	Total Gate Charge	V _{DS} =20V , V _{GS} =4.5V , I _D =12A	---	9.6	---	nC
Q _{gs}	Gate-Source Charge		---	2.5	---	
Q _{gd}	Gate-Drain Charge		---	3.8	---	
Source-Drain Characteristics						
V _{SD}	Diode Forward Voltage	I _S =10A, V _{GS} =0V	---	0.88	1.1	V
t _{rr}	Reverse Recovery Time	I _F =12A ,di/dt=100A/μs,	---	17	---	nS
Q _{rr}	Reverse Recovery Charge	T _J =25℃, V _{DS} =20V	---	12	---	nC

Note ④: Pulse test (pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$).

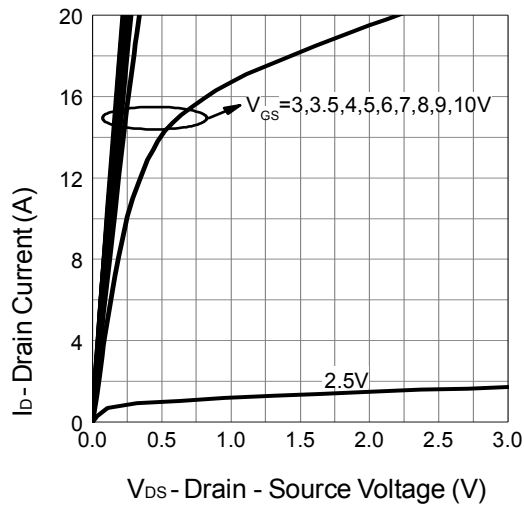
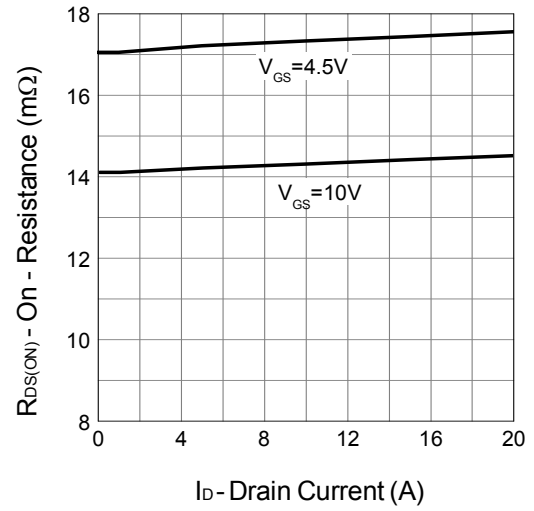
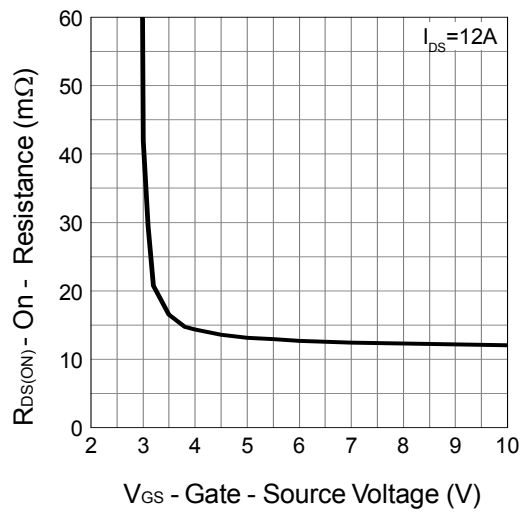
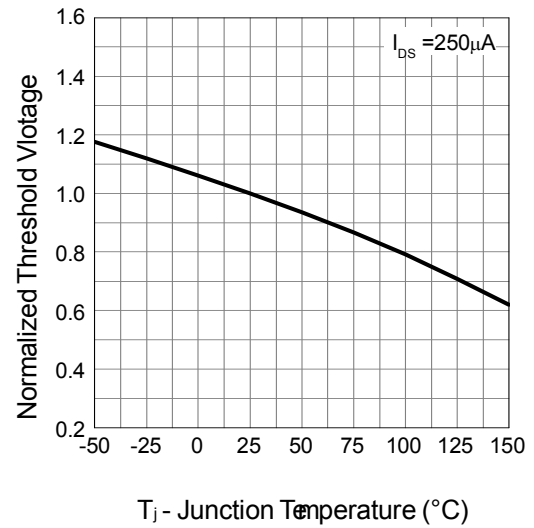
Note ⑤: Guaranteed by design, not subject to production testing.

Dual N-Channel Enhancement Mode MOSFET

Typical Characteristics

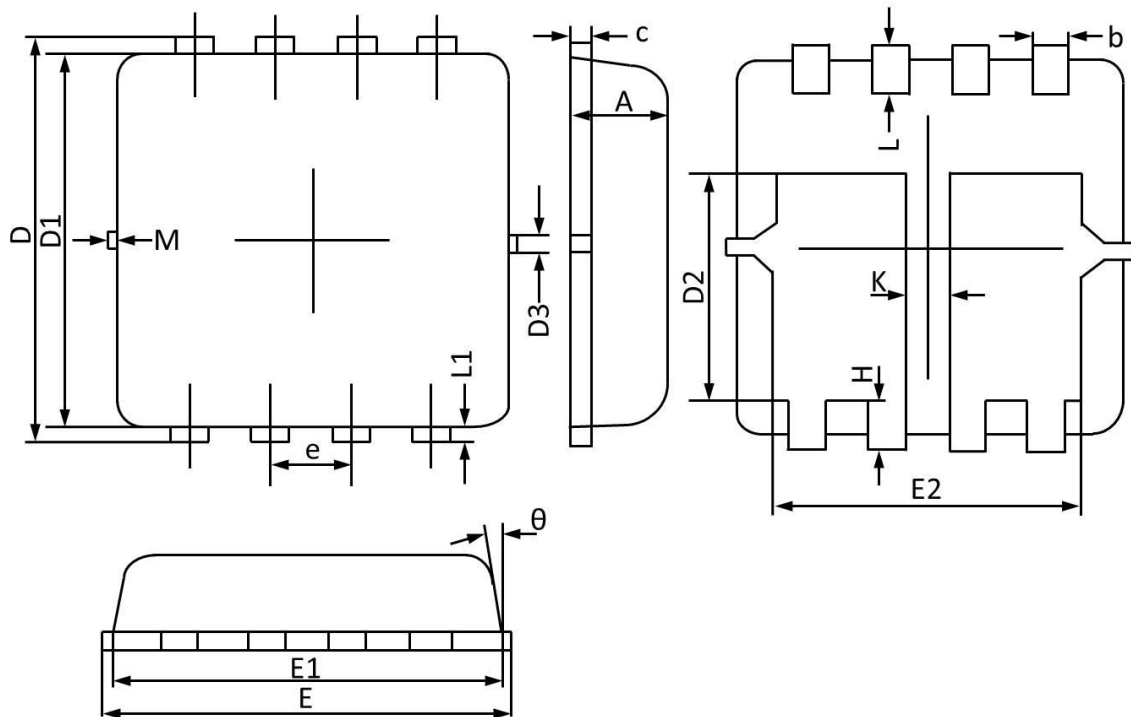


Dual N-Channel Enhancement Mode MOSFET

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


Dual N-Channel Enhancement Mode MOSFET

DFN3*3-8 EP2 Package Outline Data



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.70	0.75	0.85	E2	2.35	2.50	2.60
b	0.25	0.30	0.35	e	0.65 BSC		
c	0.10	0.17	0.25	H	0.30	0.40	0.50
D	3.10	3.30	3.45	L	0.30	0.40	0.50
D1	2.90	3.05	3.20	L1	0.13 REF		
D2	1.45	1.70	1.95	K	0.30 REF		
D3	0.13 REF			θ	0°		12°
E	3.05	3.25	3.40	M	0.15 REF		
E1	2.90	3.10	3.25				