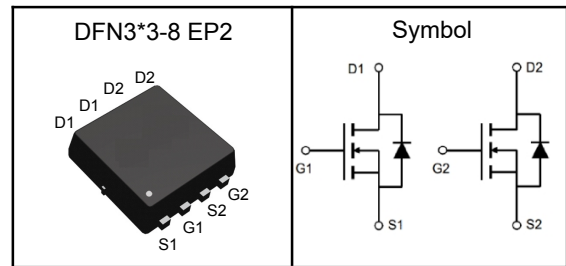


Dual N-Channel Enhancement Mode MOSFET
Features

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

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V_{DSS}	45	V
$R_{DS(ON)-Typ}$	13	m Ω
I_D	30	A

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

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	45	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	120	A
I_D	Continuous Drain Current	30	A
P_D	Maximum Power Dissipation	15	W
E_{AS}	Avalanche Energy, Single pulse	20	mJ

$L=0.1mH$

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	58	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	4.5	$^{\circ}C/W$

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 1in² FR-4 board with 1oz.



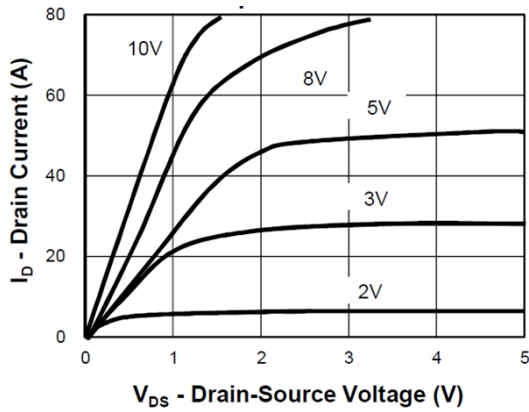
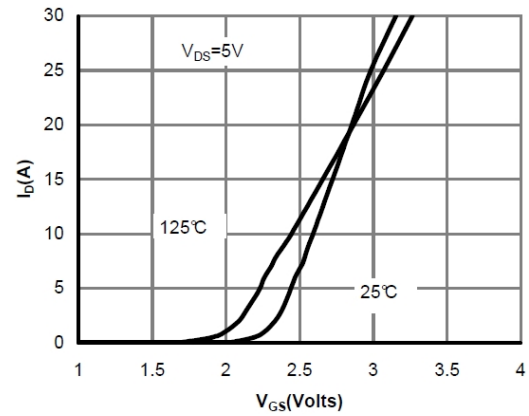
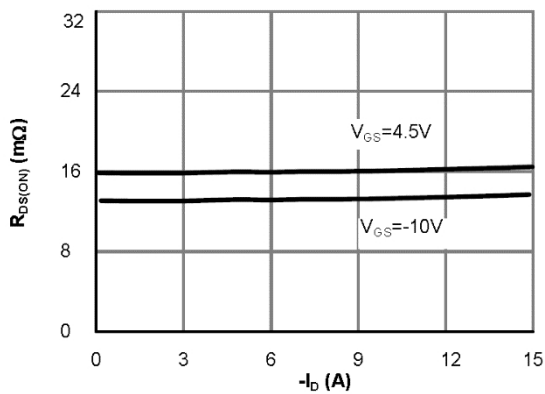
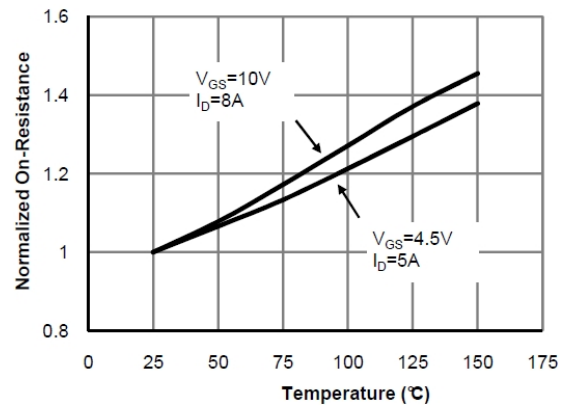
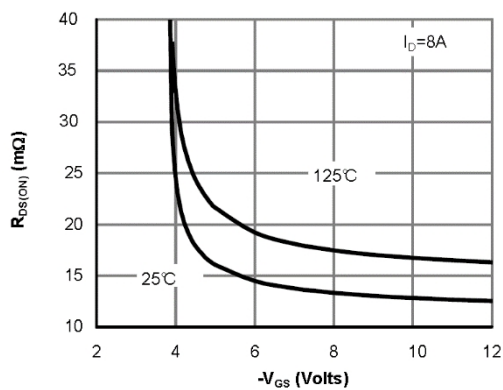
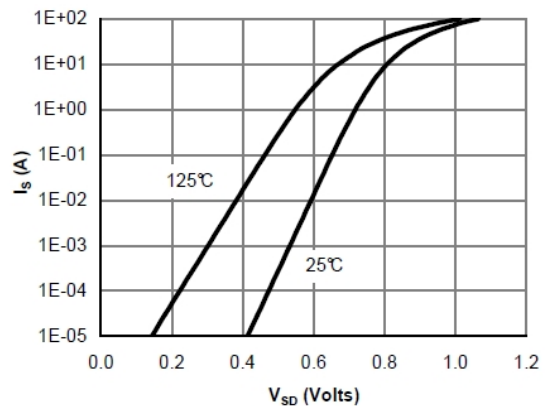
Dual N-Channel Enhancement Mode MOSFET

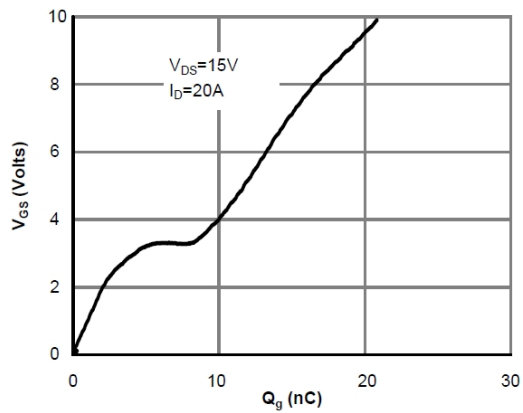
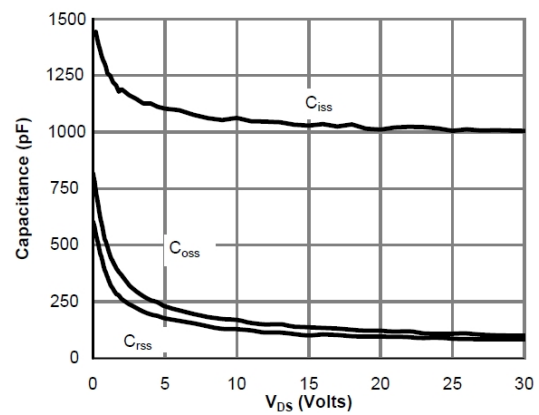
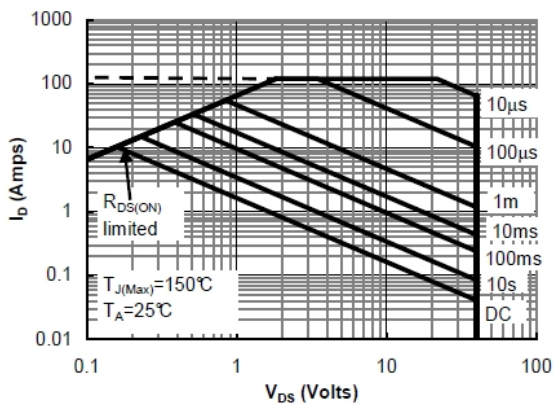
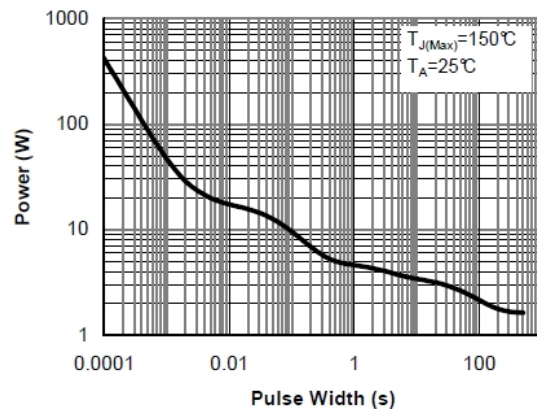
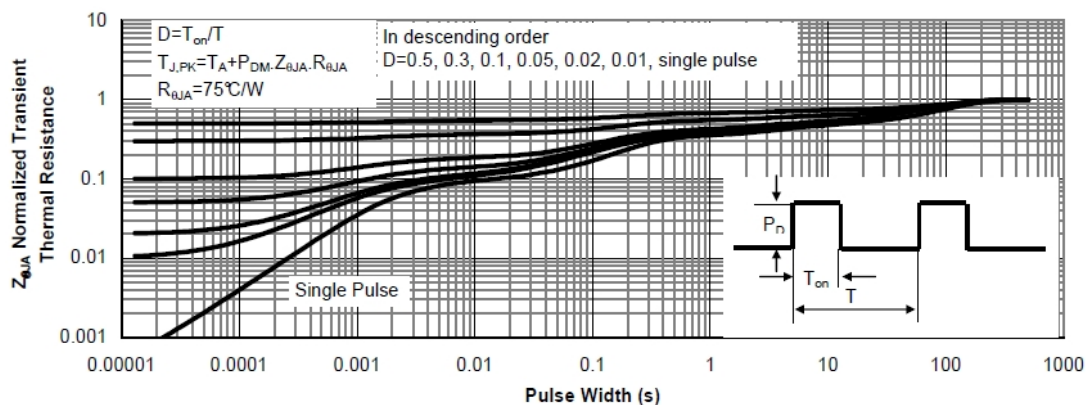
Electrical Characteristics ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

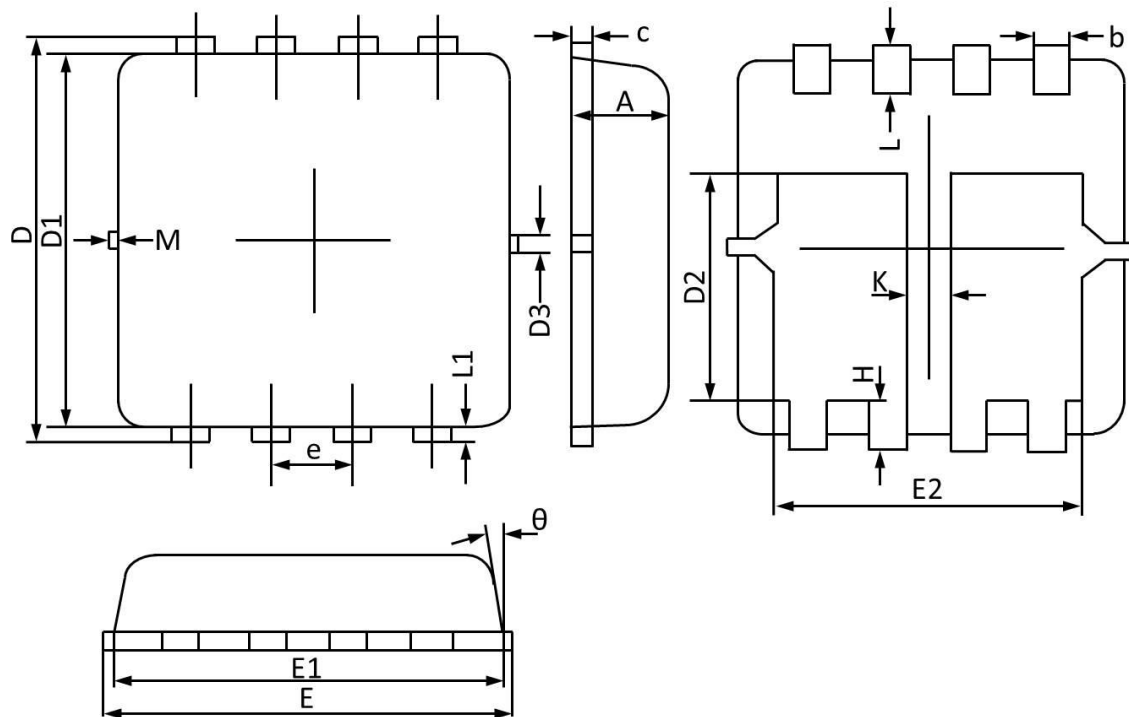
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	45	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=45V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.5	---	2.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=8A$	---	13	17	$m\Omega$
		$V_{GS}=4.5V, I_D=5A$	---	16	21	$m\Omega$
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=20V, \text{Freq.}=1\text{MHz}$	---	1190	---	pF
C_{oss}	Output Capacitance		---	83	---	
C_{rss}	Reverse Transfer Capacitance		---	70	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=20V, R_L=2\Omega, V_{GEN}=10V, R_G=3\Omega$	---	6	---	nS
T_r	Turn-on Rise Time		---	25	---	
$T_{d(off)}$	Turn-off Delay Time		---	33	---	
T_f	Turn-off Fall Time		---	11	---	
Q_g	Total Gate Charge	$V_{DS}=120V, V_{GS}=10V, I_D=20A$	---	21	---	nC
Q_{gs}	Gate-Source Charge		---	4.5	---	
Q_{gd}	Gate-Drain Charge		---	4.2	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	$I_S=1A, V_{GS}=0V$	---	0.8	1.2	V
t_{rr}	Reverse Recovery Time	$I_F=20A, di/dt=100A/\mu s, T_J=25^{\circ}\text{C}$	---	8.5	---	nS
Q_{rr}	Reverse Recovery Charge		---	1.4	---	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
Figure 1. On-Region Characteristics

Figure 2. Transfer Characteristics

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

Figure 4. On-Resistance vs. Junction Temperature

Figure 5. On-Resistance vs. Gate-Source Voltage

Figure 6. Body-Diode Characteristics


Dual N-Channel Enhancement Mode MOSFET
Figure 7. Gate-Charge Characteristics

Figure 8. Capacitance Characteristics

Figure 9. Maximum Forward Biased Safe Operating Area

Figure 10. Single Pulse Power Rating Junction-to-Ambient

Figure 11. Normalized Maximum Transient Thermal Impedance


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			theta	0°		12°
E	3.05	3.25	3.40	M	0.15 REF		
E1	2.90	3.10	3.25				