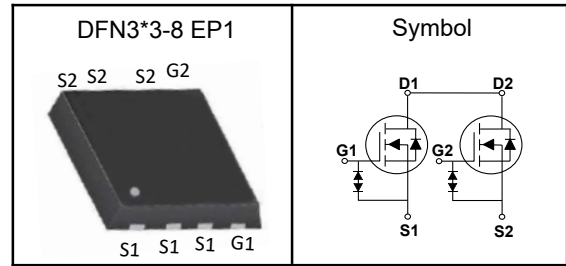


Common-Drain Dual N-Channel Enhancement Mode MOSFET
Features

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

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description


V_{DSS}	20	V
$R_{DS(ON)-Typ}$	4.3	m Ω
I_D	56	A

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

Symbol	Parameter	N-Channel	Unit
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	± 8	V
T_J	Maximum Junction Temperature	-55 to 150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$I_{DM}^{①}$	Pulse Drain Current Tested	100	A
I_D	Continuous Drain Current	$T_A=25^\circ\text{C}$	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$	A
P_D	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	W
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	35	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	4	$^\circ\text{C}/\text{W}$

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

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

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



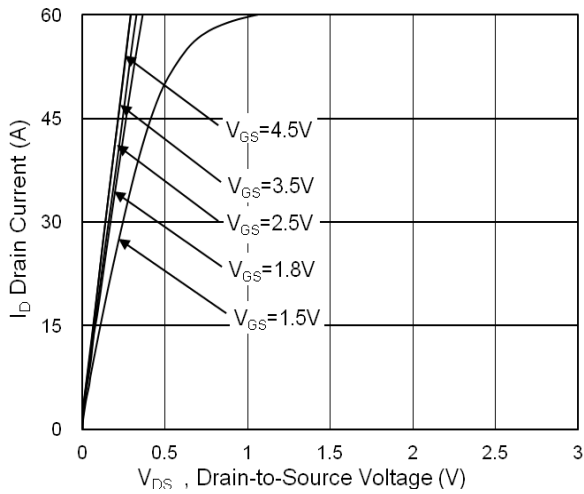
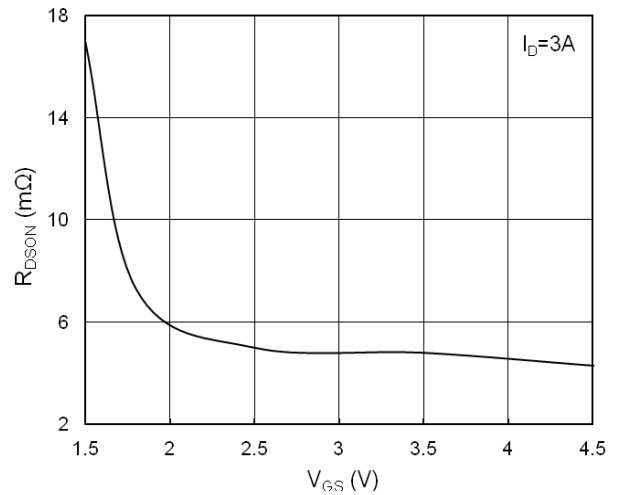
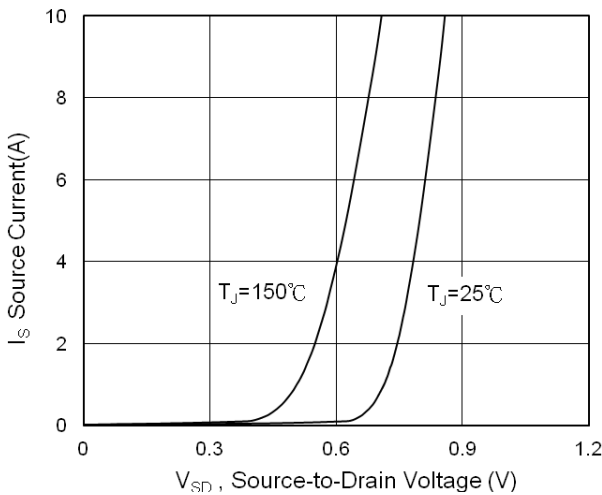
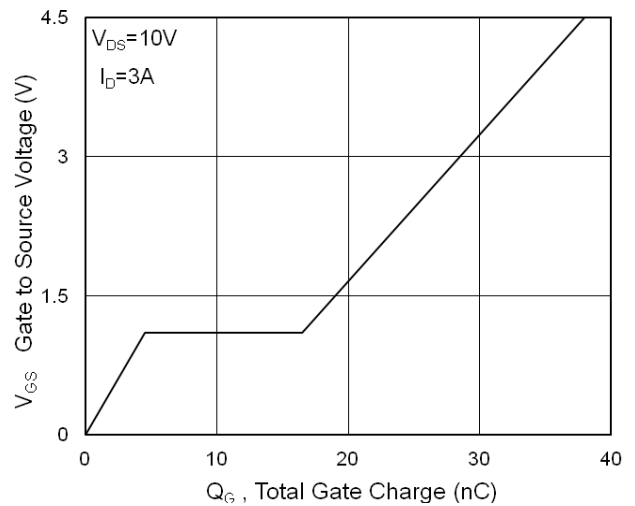
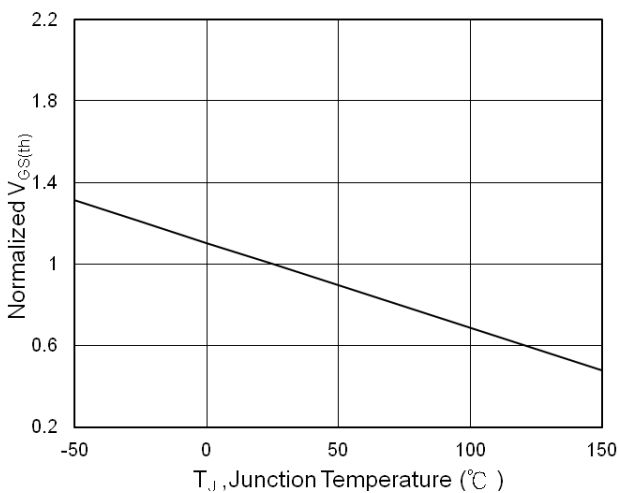
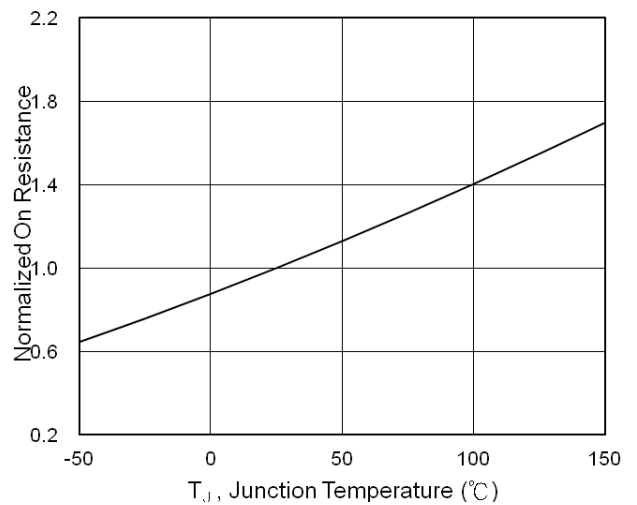
Common-Drain Dual N-Channel Enhancement Mode MOSFET

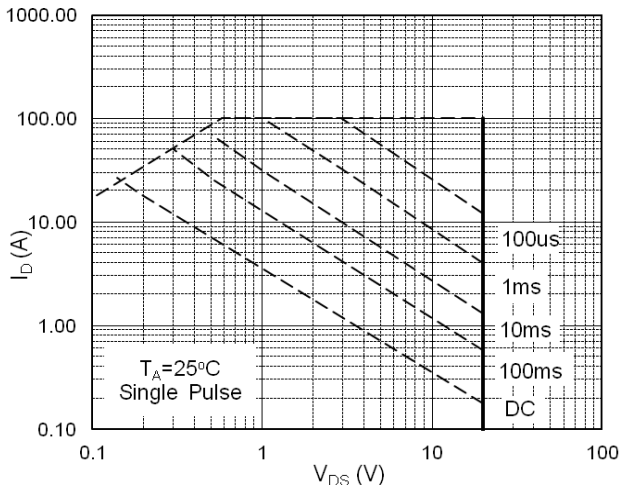
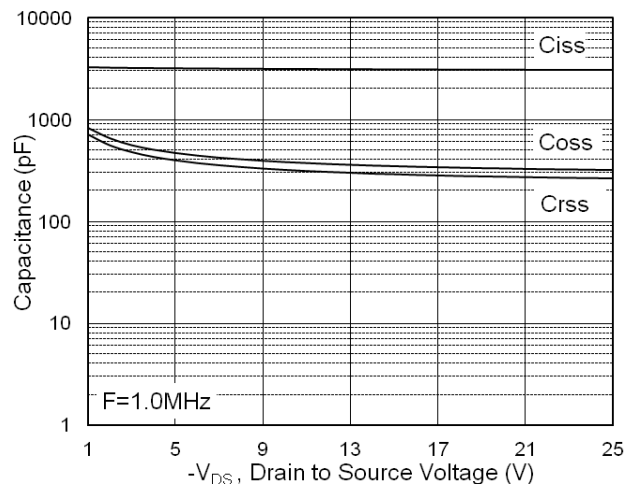
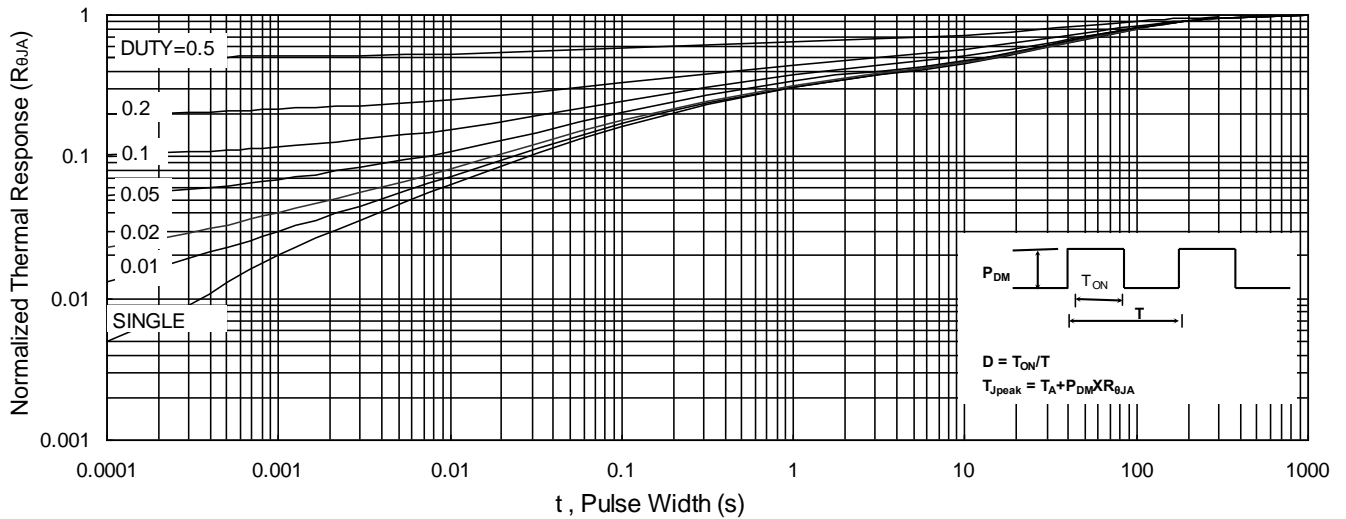
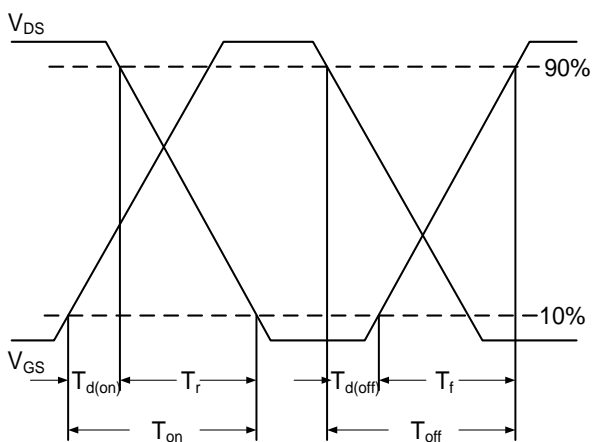
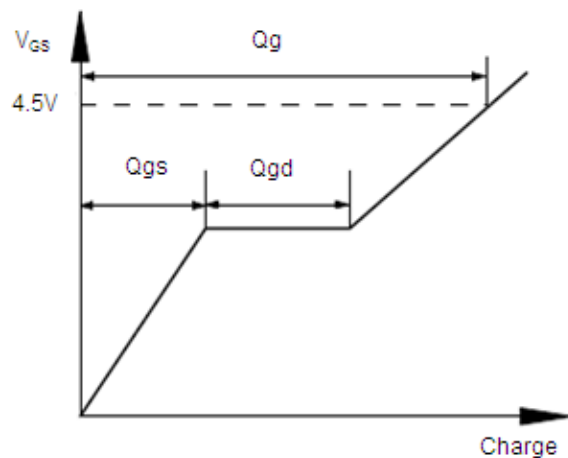
Electrical Characteristics ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

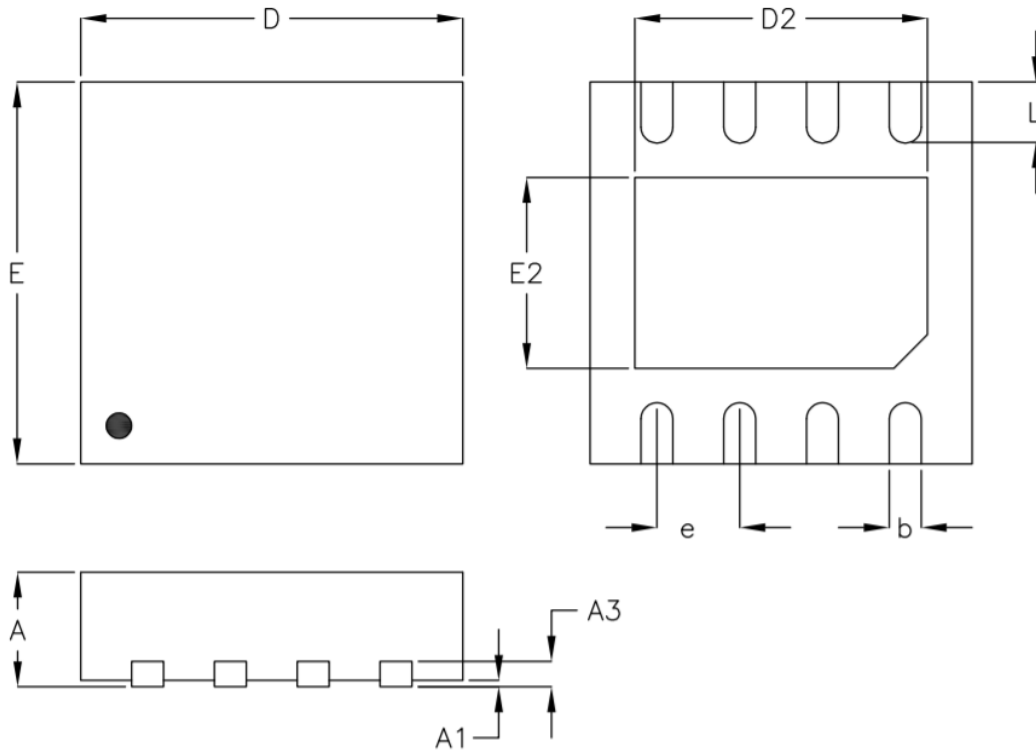
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=16V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4	---	1.0	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 8V, V_{DS}=0V$	---	---	± 10	μA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=4.5V, I_D=3A$	---	4.3	5.8	$m\Omega$
		$V_{GS}=2.5V, I_D=3A$	---	5	7	$m\Omega$
gfs	Forward Transconductance	$V_{DS}=5V, I_D=3A$	---	42	---	S
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=10V,$ Freq.=1MHz	---	3165	---	pF
C_{oss}	Output Capacitance		---	380	---	
C_{riss}	Reverse Transfer Capacitance		---	325	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=16V, V_{GS}=4.5V,$ $R_G=6\Omega, I_D=3A$	---	22	---	nS
T_r	Turn-on Rise Time		---	41	---	
$T_{d(off)}$	Turn-off Delay Time		---	77	---	
T_f	Turn-off Fall Time		---	21	---	
Q_g	Total Gate Charge	$V_{DS}=10V, I_D=3A$	---	38	---	nC
Q_{gs}	Gate-Source Charge		---	4.5	---	
Q_{gd}	Gate-Drain Charge		---	12	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	$I_S=3A, V_{GS}=0V$	---	---	1.2	V
I_S	Continuous Source Current ¹	$V_G=V_D=0V, \text{ Force Current}$	---	30	---	A
I_{SM}	Pulsed Source Current ²		---	100	---	A

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

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

Common-Drain Dual N-Channel Enhancement Mode MOSFET
Typical Characteristics

Fig.1 Typical Output Characteristics

Fig.2 On-Resistance vs. Gate-Source

Fig.3 Forward Characteristics Of Reverse

Fig.4 Gate-Charge Characteristics

Fig.5 $V_{GS(th)}$ vs. T_J

Fig.6 Normalized $R_{DS(on)}$ vs. T_J

Common-Drain Dual N-Channel Enhancement Mode MOSFET

Fig.7 Capacitance

Fig.8 Safe Operating Area

Fig.9 Normalized Maximum Transient Thermal Impedance

Fig.10 Switching Time Waveform

Fig.11 Gate Charge Waveform

Common-Drain Dual N-Channel Enhancement Mode MOSFET
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