Dual P-Channel Enhancement Mode MOSFET

Features

- Low Rdson for low conduction loss

- Reliable and Rugged

- ROHS Compliant & Halogen-Free

Applications

- Power Management in Desktop Computer

- DC/DC Converters

Pin Description
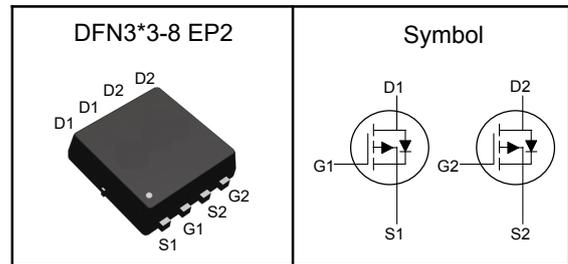
V_{DSS}	-30	V
$R_{DS(ON)\text{-}Typ}$	11	mΩ
I_D	-10	A

Absolute Maximum Ratings(T$_A$=25℃, Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		-55 to 150	℃
T_{STG}	Storage Temperature Range		-55 to 150	℃
I_{DM}[①]	Pulse Drain Current Tested		-40	A
I_D	Continuous Drain Current	T$_C$=25°C	-10	A
I_D	Continuous Drain Current	T$_C$=100°C	-6.5	A
P_D	Maximum Power Dissipation		3.5	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$[③]	Thermal Resistance-Junction to Ambient	38	℃/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$_{DS}$=-30V, V$_{GS}$=0V	---	---	-1	uA
V$_{GS(th)}$	Gate Threshold Voltage	V$_{DS}$=V$_{GS}$, I$_D$=-250uA	-1.2	---	-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$_D$=-7A	---	11	13.5	mΩ
		V$_{GS}$=-4.5V, I$_D$=-4A	---	16	20	mΩ
Dynamic Characteristics[⑤]						
C$_{iss}$	Input Capacitance	V$_{GS}$=0V, V$_{DS}$=-30V, Freq.=1MHz	---	1230	---	pF
C$_{oss}$	Output Capacitance		---	158	---	pF
C$_{rss}$	Reverse Transfer Capacitance		---	137	---	pF
T$_{d(on)}$	Turn-on Delay Time	V$_{GS}$=-10V,V$_{DD}$=-30V, I$_D$=-4A,R$_G$=3.3Ω	---	16.4	---	nS
T$_r$	Turn-on Rise Time		---	20.2	---	nS
T$_{d(off)}$	Turn-off Delay Time		---	55	---	nS
T$_f$	Turn-off Fall Time		---	10	---	nS
Q$_g$	Total Gate Charge	V$_{GS}$=-10V,V$_{DD}$=-30V, I$_D$=-7A	---	9.5	---	nC
Q$_{gs}$	Gate-Source Charge		---	2	---	nC
Q$_{gd}$	Gate-Drain Charge		---	3	---	nC
Source-Drain Characteristics						
V$_{SD}$[④]	Diode Forward Voltage	I$_S$=-7A, V$_{GS}$=0V	---	---	-1.2	V

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
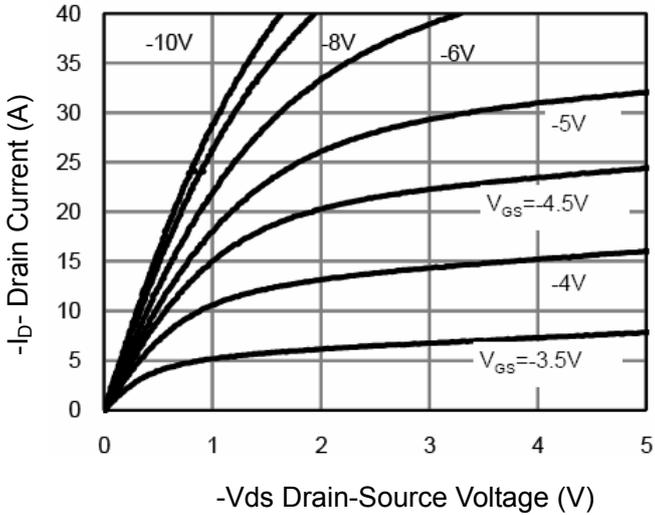
Figure 1 Output Characteristics

Figure 2 Transfer Characteristics
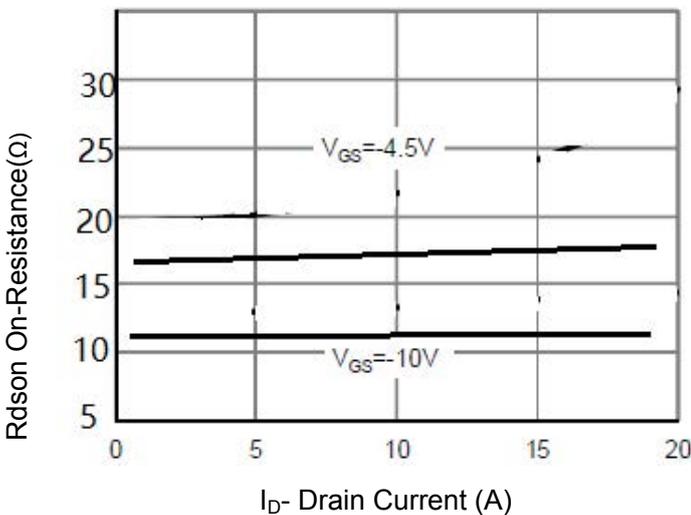
Figure 3 Rdson- Drain Current

Figure 4 Rdson-Junction Temperature

Figure 5 Gate Charge
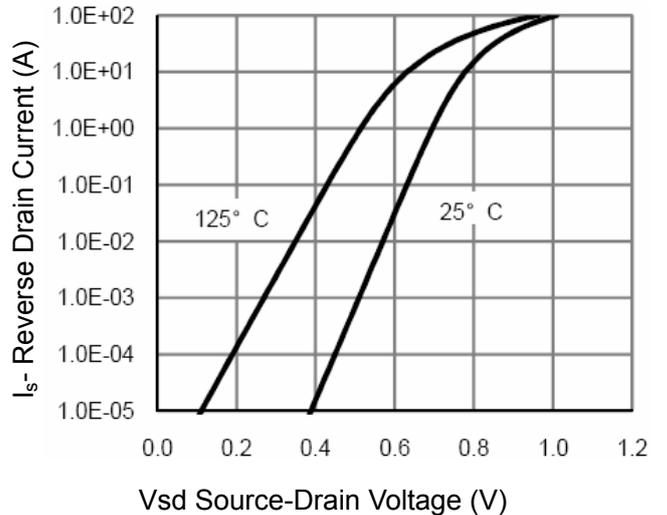
Figure 6 Source- Drain Diode Forward

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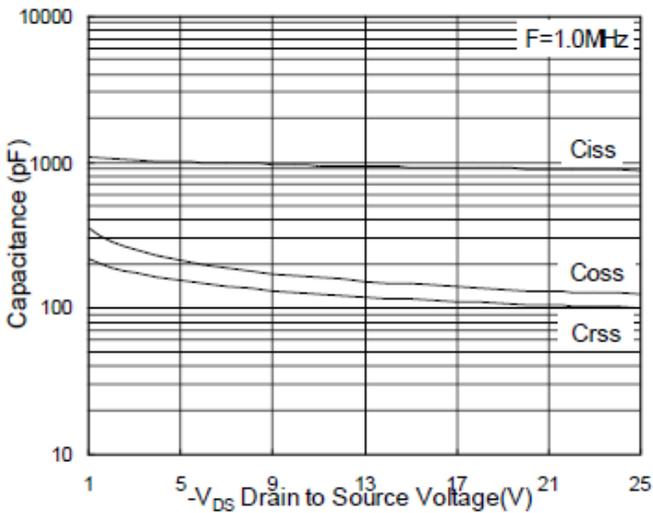
Figure 7 Capacitance vs Vds
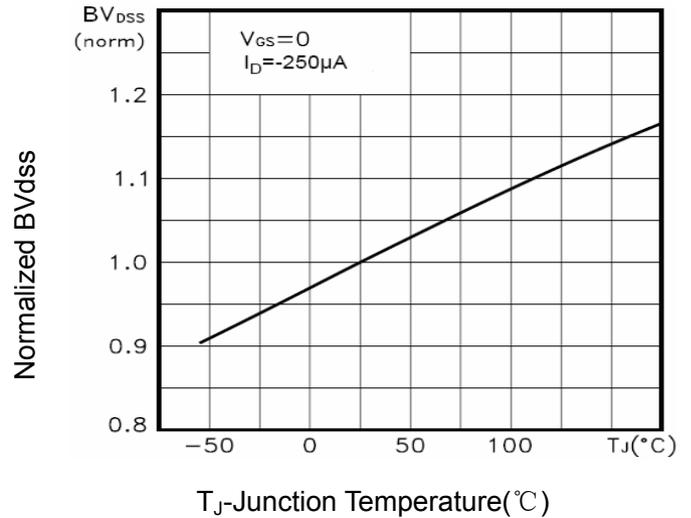
Figure 9 BV$_{DSS}$ vs Junction Temperature
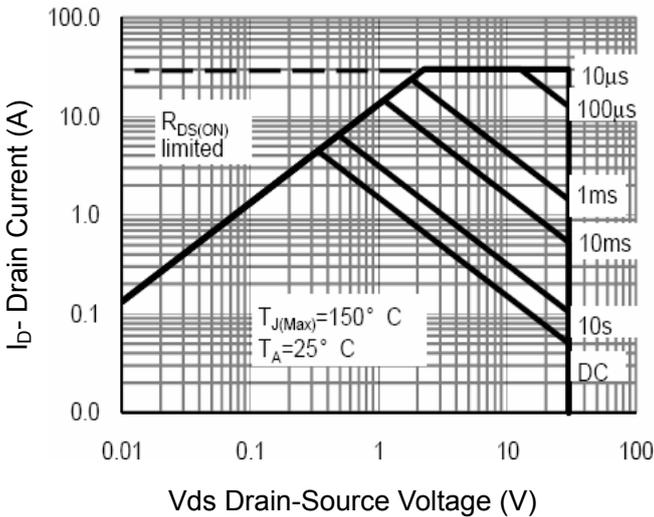
Figure 8 Safe Operation Area
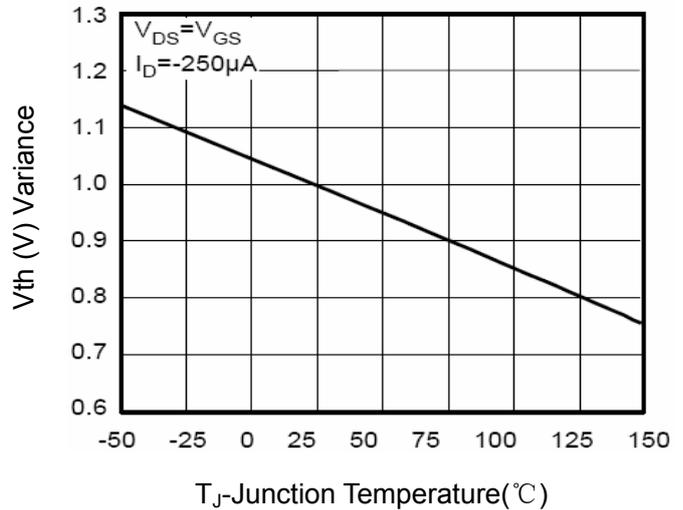
Figure 10 V$_{GS(th)}$ vs Junction Temperature
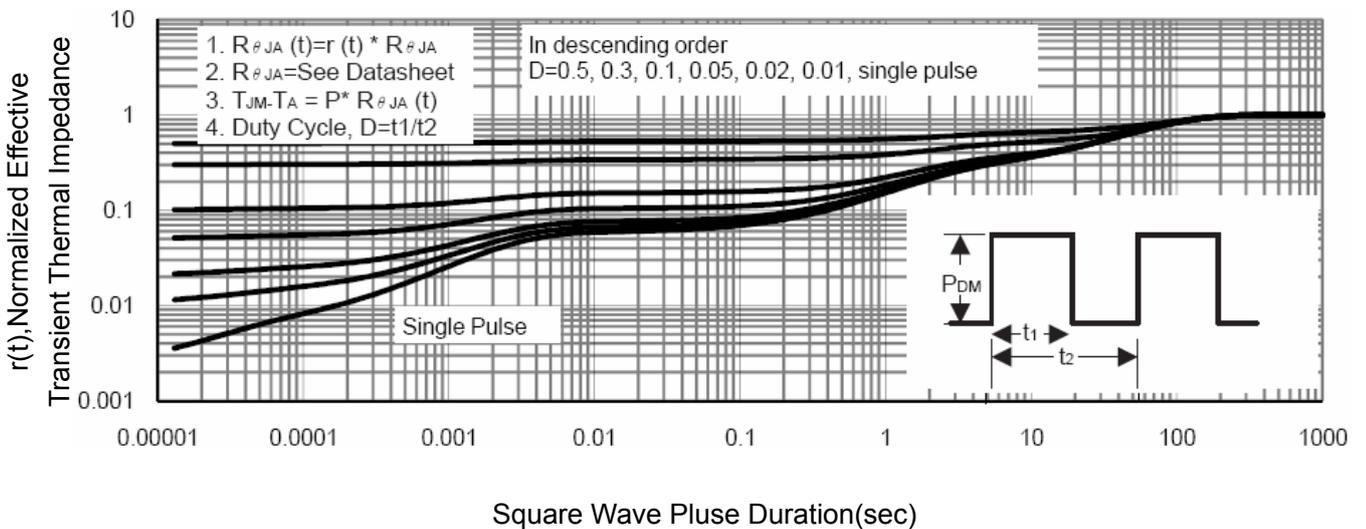
Figure 11 Normalized Maximum Transient Thermal Impedance

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DFN3*3-8 EP2 Package Outline Data
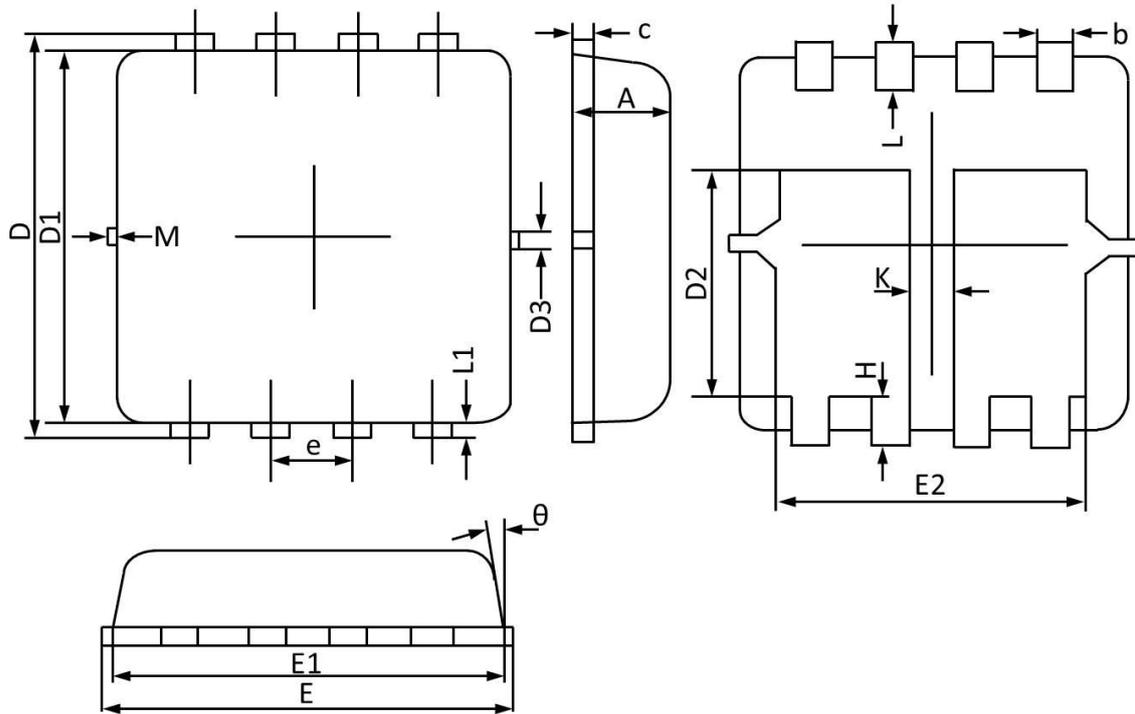
Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.70	0.75	0.85	E2	2.35	2.50	2.60
b	0.25	0.30	0.35	e	0.65 BSC		
c	0.10	0.17	0.25	H	0.30	0.40	0.50
D	3.10	3.30	3.45	L	0.30	0.40	0.50
D1	2.90	3.05	3.20	L1	0.13 REF		
D2	1.45	1.70	1.95	K	0.30 REF		
D3	0.13 REF			θ	0°		12°
E	3.05	3.25	3.40	M	0.15 REF		
E1	2.90	3.10	3.25				