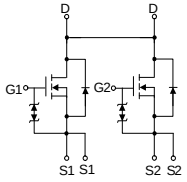
Common-Drain Dual N-Channel Enhancement Mode MOSFET

Features

- Low Rdson for low conduction loss
- ESD protection
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Pin Description

DFN2*3-6	Symbol
	

Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	20	V
$R_{DS(ON)-Typ}$	14	mΩ
I_D	8	A

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

Symbol	Parameter		N-Channel	Unit
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±12	V
T_J	Maximum Junction Temperature		-55 to 150	℃
T_{STG}	Storage Temperature Range		-55 to 150	℃
I_S	Diode Continuous Forward Current		2	A
I_{DM} ①	Pulse Drain Current Tested		38	A
I_D	Continuous Drain Current	T_A=25°C	8	A
P_D	Maximum Power Dissipation	T_A=25°C	1	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	127	℃/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	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V, V_{GS}=0V	---	---	1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	0.5	---	1	V
I_{GSS}	Gate Leakage Current	V_{GS}=±12V, V_{DS}=0V	---	---	±10	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=4.5V , I_D=5.5A	---	14	16	mΩ
		V_{GS}=2.5V , I_D=5.5A	---	18	25	mΩ
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=10V, Freq.=1MHz	---	1070	---	pF
C_{oss}	Output Capacitance		---	158	---	
C_{rss}	Reverse Transfer Capacitance		---	122	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DD}=10V, R_L=10Ω, I_{DS}=1A, V_{GEN}=10V, R_G=1Ω	---	5	---	nS
T_r	Turn-on Rise Time		---	16		
$T_{d(off)}$	Turn-off Delay Time		---	535	---	
T_f	Turn-off Fall Time		---	210	---	
R_g	Gate Resistance	f = 1.0MHz, open drain	---	11	---	Ω
Q_g	Total Gate Charge	V_{DS}=10V , V_{GS}=4.5V , I_D=5.5A	---	15.2	---	nC
Q_{gs}	Gate-Source Charge		---	1.6	---	
Q_{gd}	Gate-Drain Charge		---	3.8	---	
Source-Drain Characteristics （T_J=25℃）						
V_{SD}④	Diode Forward Voltage	I_S=1A, V_{GS}=0V	---	0.7	1.3	V
trr	Reverse Recovery Time	I_{SD}=5.5 A, di/dt=100A/μs, T_J=25℃	---	332	---	nS
Qrr	Reverse Recovery Charge		---	1475	---	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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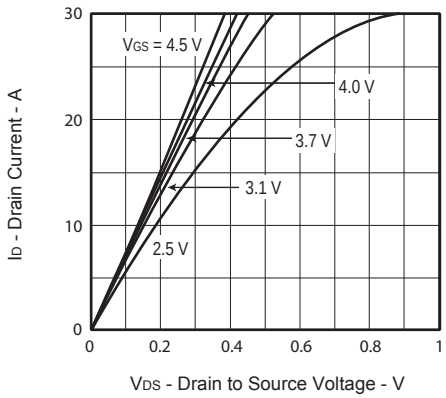
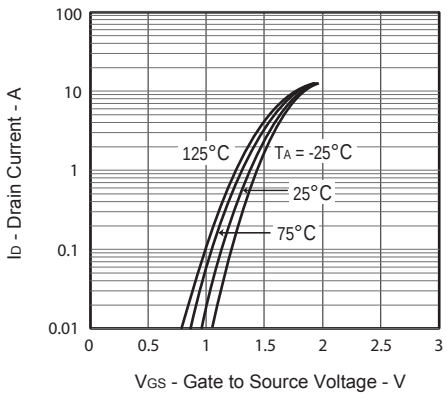
Typical Characteristics

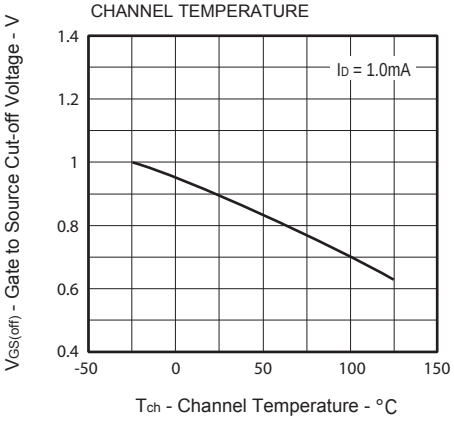
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



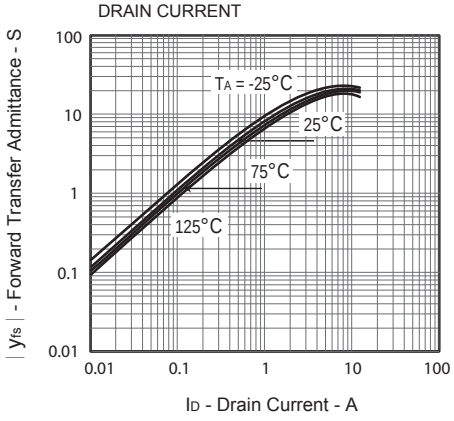
FORWARD TRANSFER CHARACTERISTICS



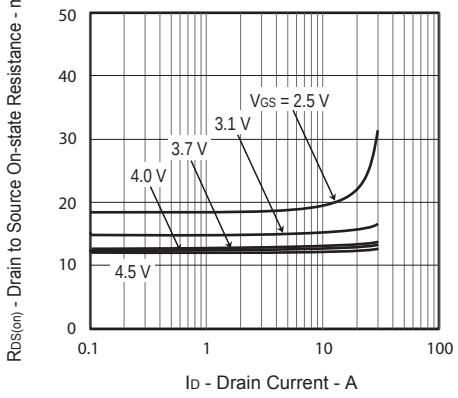
GATE TO SOURCE CUT-OFF VOLTAGE vs.
CHANNEL TEMPERATURE



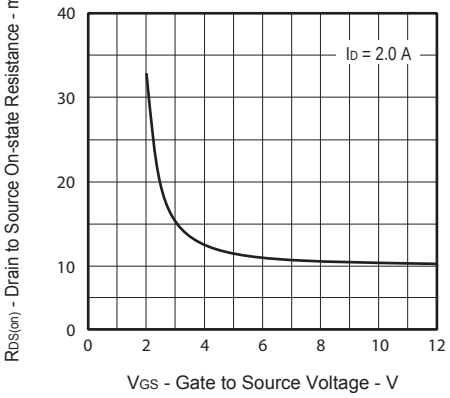
FORWARD TRANSFER ADMITTANCE vs.
DRAIN CURRENT



DRAIN TO SOURCE ON-STATE RESISTANCE vs.
DRAIN CURRENT



DRAIN TO SOURCE ON-STATE RESISTANCE vs.
GATE TO SOURCE VOLTAGE



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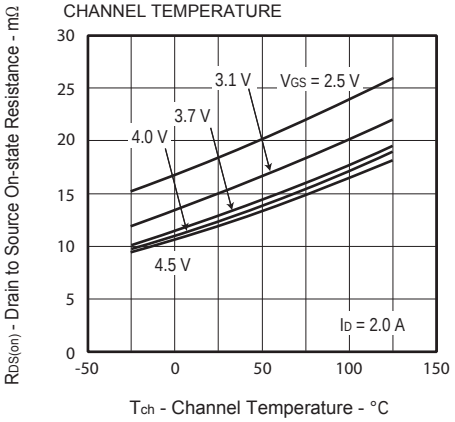
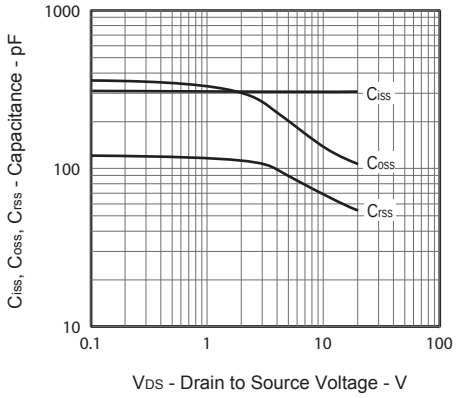
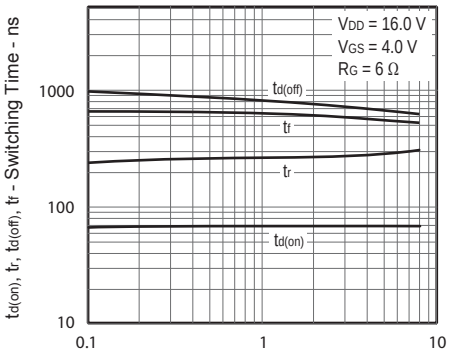
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



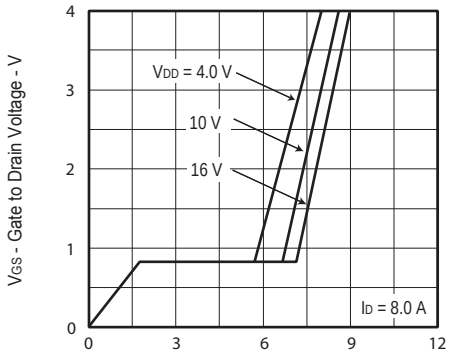
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



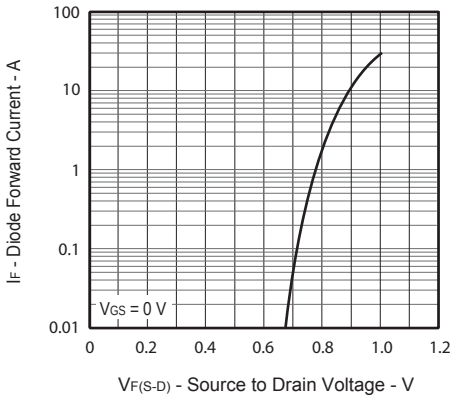
SWITCHING CHARACTERISTICS



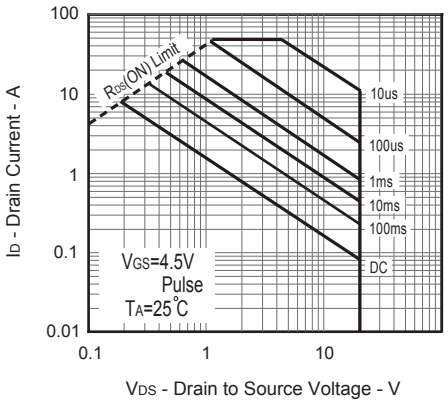
DYNAMIC INPUT CHARACTERISTICS



SOURCE TO DRAIN DIODE FORWARD VOLTAGE



FORWARD BIAS SAFE OPERATING AREA



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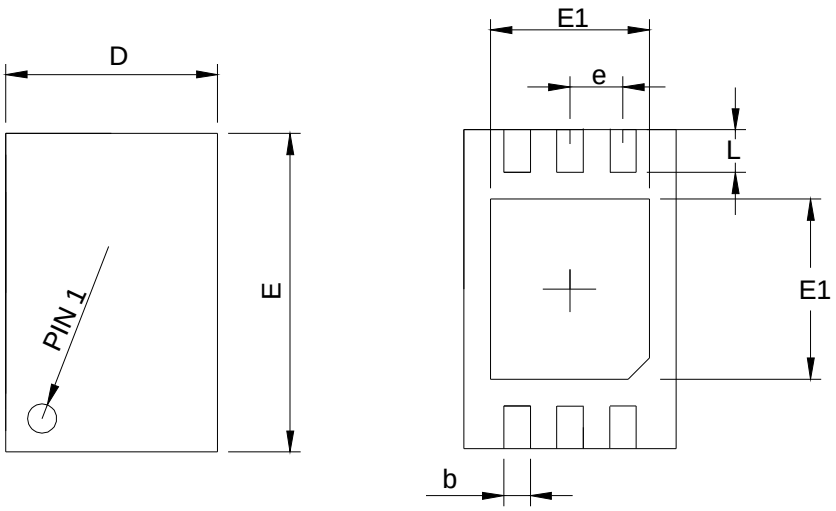
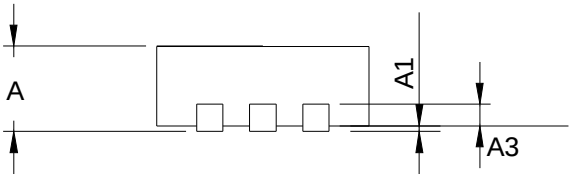
DFN2*3-6 Package Outline Dimensions



TOP VIEW

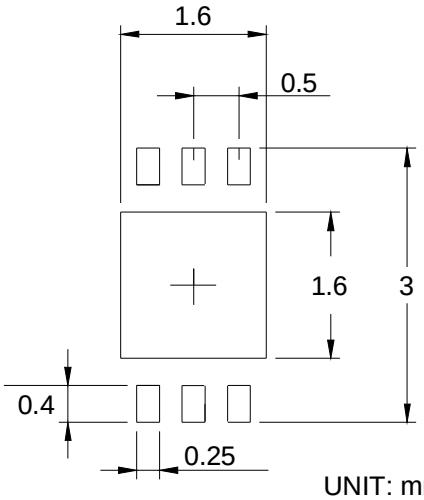
BOTTOM VIEW



SIDE VIEW

SYMBOL	DFN2*3-6			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
A3	0.203 REF		0.008 REF	
b	0.20	0.30	0.008	0.012
D	1.90	2.10	0.075	0.083
E1	1.60	1.80	0.063	0.071
E	2.90	3.10	0.114	0.122
D1	1.40	1.60	0.055	0.063
e	0.50 BSC		0.02 BSC	
L	0.30	0.50	0.012	0.020

RECOMMENDED LAND PATTERN



UNIT: mm