

P-Channel Enhancement Mode MOSFET

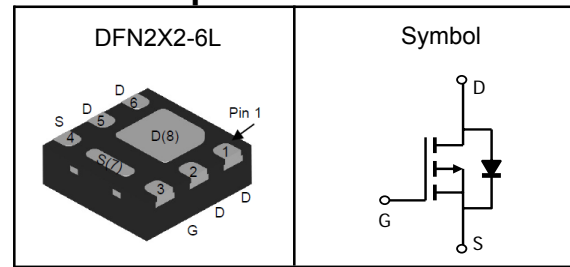
Features

- 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 _{bss}	-30	V
R _{ds(ON)-Typ}	19	mΩ
I _d	-10	A

Absolute Maximum Ratings (T_C=25°C, Unless Otherwise Noted)

Symbol	Parameter	P-Channel	Unit
V _{bss}	Drain-Source Voltage	-30	V
V _{GSS}	Gate-Source Voltage	±20	V
T _J	Maximum Junction Temperature	-55 to 150	°C
T _{STG}	Storage Temperature Range	-55 to 150	°C
I _{DM} ^①	Pulse Drain Current Tested	-36	A
I _d	Continuous Drain Current	-10	A
P _D	Maximum Power Dissipation	1.6	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
R _{θJA} ^③	Thermal Resistance-Junction to Ambient	50	°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°C.

Note ③ : Surface Mounted on 1in² FR-4 board with 1oz.



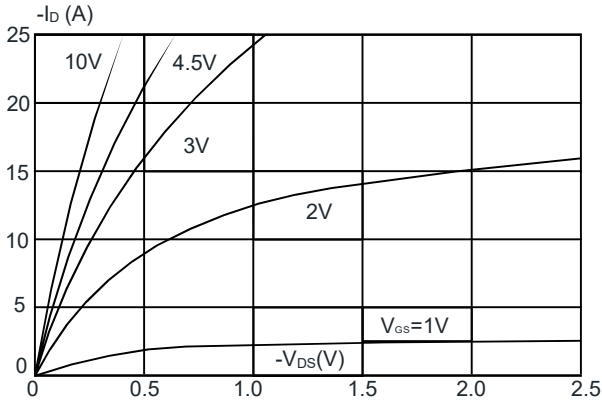
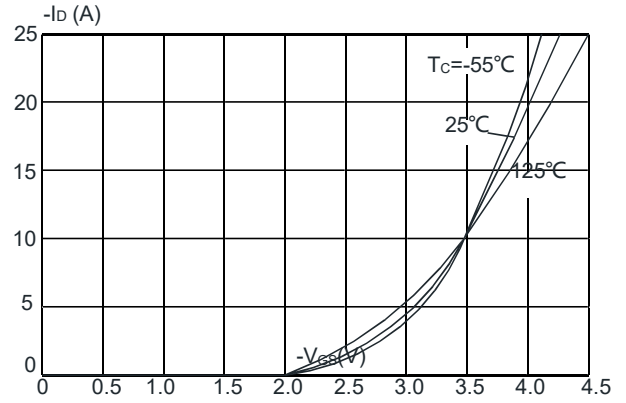
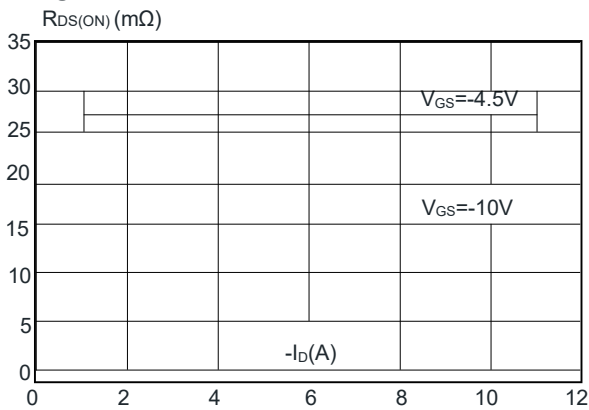
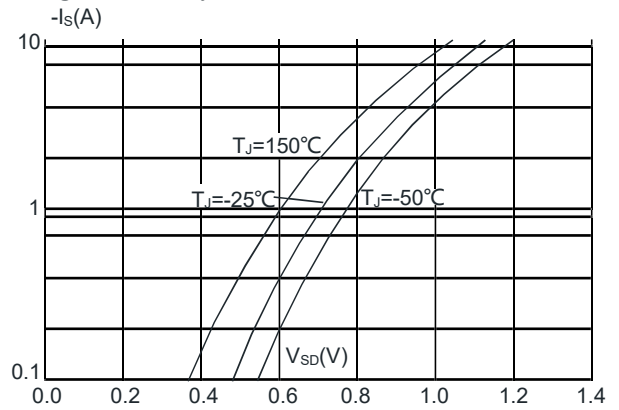
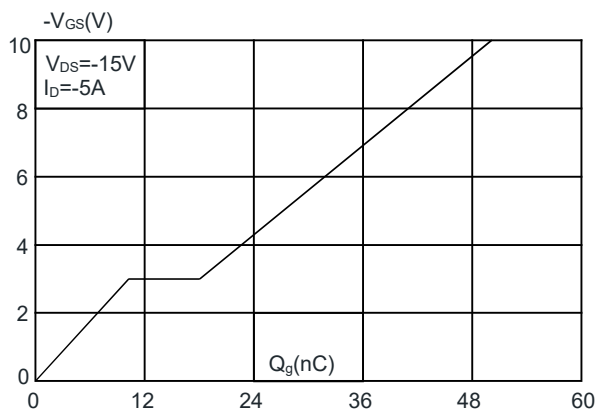
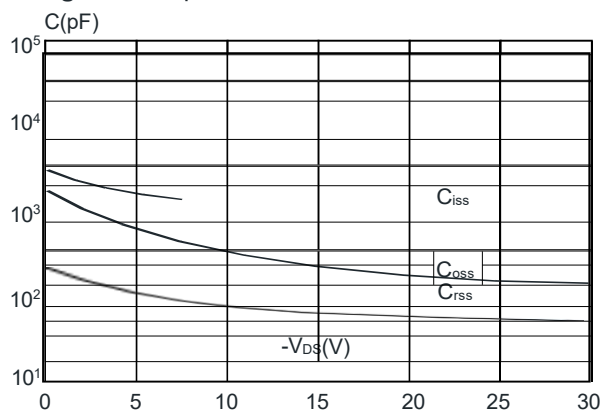
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Electrical Characteristics ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24V, V_{GS}=0V$	---	---	-1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	---	-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	$V_{GS}=-10V, I_D=-10A$	---	19	24	m Ω
		$V_{GS}=-4.5V, I_D=-5A$	---	25	35	
gfs	Forward Transconductance	$V_{DS}=-10V, I_D=-1A$	---	5	---	S
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-15V, \text{Freq.}=1\text{MHz}$	---	1150	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	130	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=-15V, V_{GS}=-4.5V, R_G=3.3\Omega, I_D=-1A$	---	12	---	nS
T_r	Turn-on Rise Time		---	14	---	
$T_{d(off)}$	Turn-off Delay Time		---	90	---	
T_f	Turn-off Fall Time		---	20	---	
Q_g	Total Gate Charge	$V_{DS}=-15V, V_{GS}=-4.5V, I_D=-5A$	---	48	---	nC
Q_{gs}	Gate-Source Charge		---	9	---	
Q_{gd}	Gate-Drain Charge		---	8	---	
Source-Drain Characteristics						
V_{SD} ^④	Diode Forward Voltage	$I_S=-1A, V_{GS}=0V$	---	---	-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: Typical Transfer Characteristics

Figure 3: On-resistance vs. Drain Current

Figure 4 : Body Diode Characteristics

Figure 5: Gate Charge Characteristics

Figure 6: Capacitance Characteristics


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Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

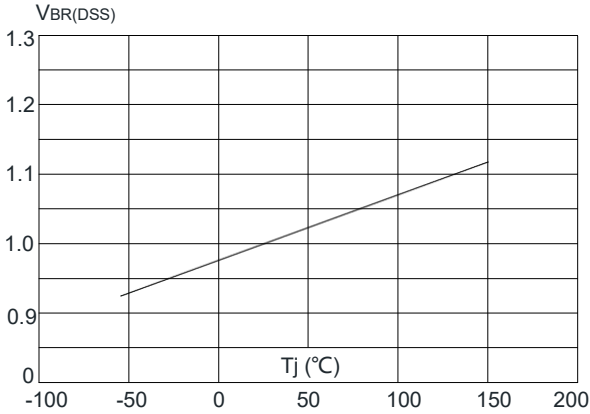


Figure 8: Normalized on Resistance vs. Junction Temperature

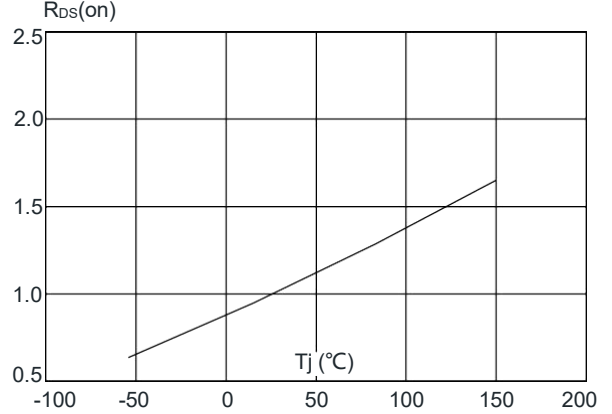


Figure 9: Maximum Safe Operating Area

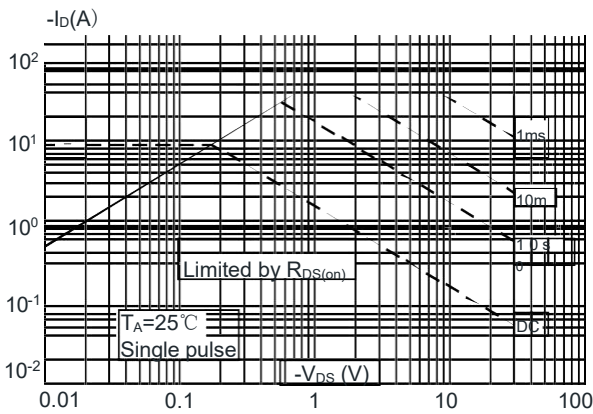


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

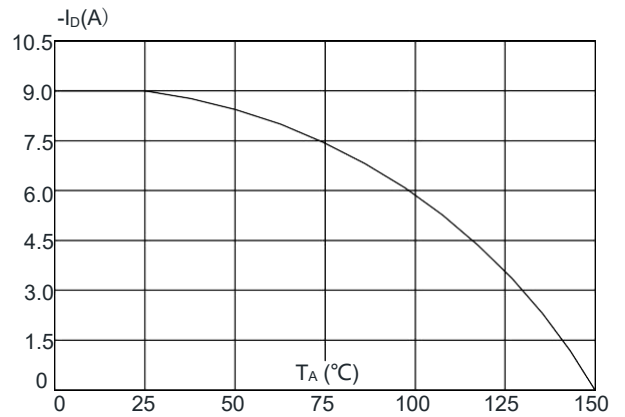
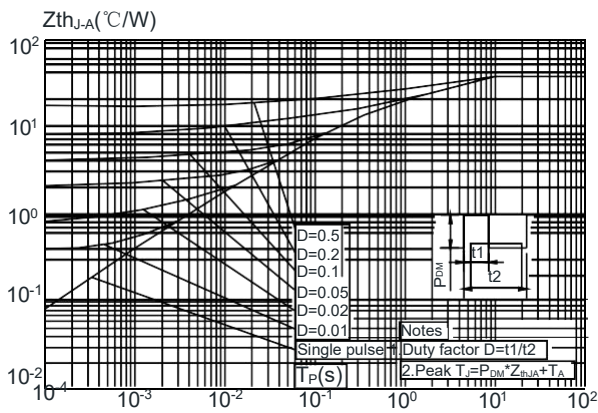
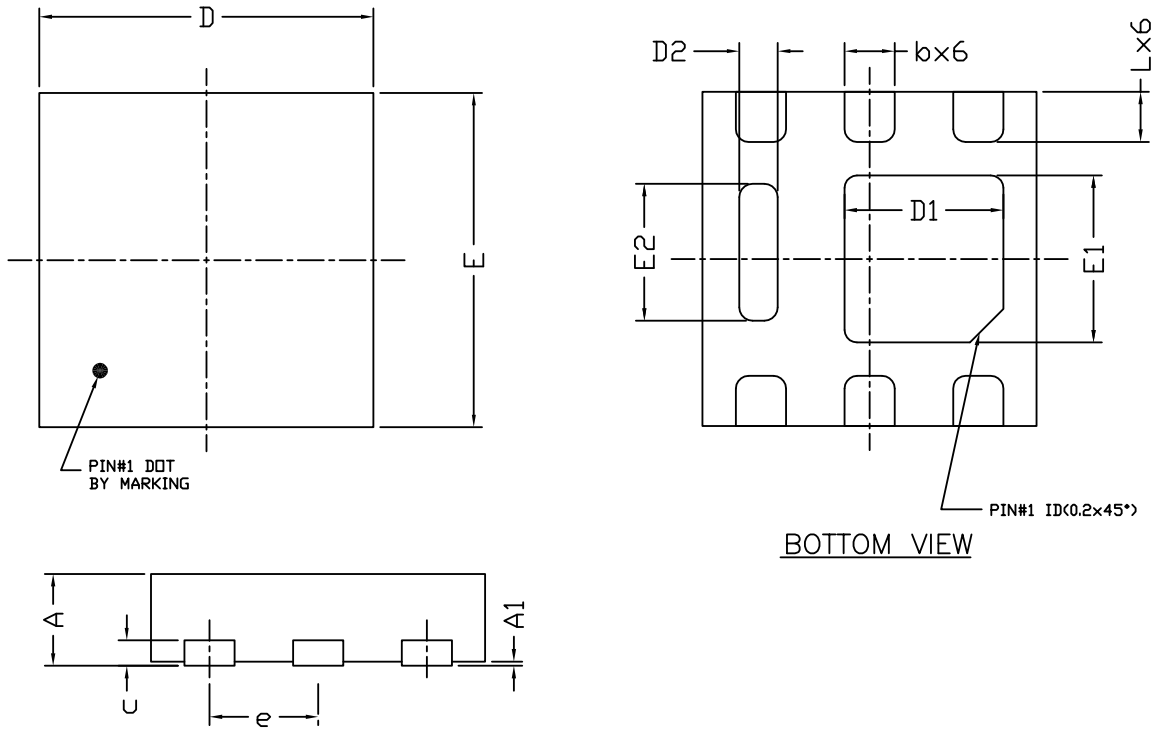


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



P-Channel Enhancement Mode MOSFET
DFN2X2-6L Package Outline Dimensions


Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.50	0.55	0.60	D2	0.13	0.25	0.40
A1	0.00	---	0.05	E	1.90	2.00	2.10
b	0.25	0.30	0.35	E1	0.82	1.00	1.20
c	0.15 REF			E2	0.45	0.75	0.90
D	1.90	2.00	2.10	e	0.65 REF		
D1	0.85	0.95	1.05	L	0.20	0.25	0.32