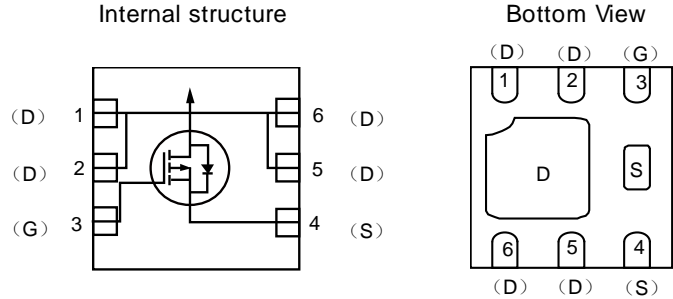


Plastic-Encapsulate MOSFETS

Features

- V_{DS} (V) = -30V
- I_D = -5.0 A (V_{GS} = -10V)
- $R_{DS(ON)}$ < 50m Ω (V_{GS} = -10V)
- $R_{DS(ON)}$ < 65m Ω (V_{GS} = -4.5V)
- $R_{DS(ON)}$ < 120m Ω (V_{GS} = -2.5V)



DFN-6L(2*2)

Absolute Maximum Ratings $T_A=25^\circ\text{C}$ unless otherwise noted			
Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^A	I_D	$T_A=25^\circ\text{C}$	-5.0
		$T_A=70^\circ\text{C}$	-3.5
Pulsed Drain Current ^B	I_{DM}	-30	A
Power Dissipation ^A	P_D	$T_A=25^\circ\text{C}$	1.4
		$T_A=70^\circ\text{C}$	1
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Thermal Characteristics					
Parameter	Symbol	Typ	Max	Units	
Maximum Junction-to-Ambient ^A	$R_{\theta JA}$	$t \leq 10\text{s}$	65	90	$^\circ\text{C/W}$
Maximum Junction-to-Ambient ^A		Steady-State	85	125	$^\circ\text{C/W}$
Maximum Junction-to-Lead ^C	$R_{\theta JL}$	Steady-State	43	60	$^\circ\text{C/W}$

Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	$I_D=-250\mu\text{A}, V_{GS}=0\text{V}$	-30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-24\text{V}, V_{GS}=0\text{V}$ $T_J=55^\circ\text{C}$			-1	μA
					-5	
I_{GSS}	Gate-Body leakage current	$V_{DS}=0\text{V}, V_{GS}=\pm 12\text{V}$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	-0.7	-1	-1.3	V
$I_{D(ON)}$	On state drain current	$V_{GS}=-4.5\text{V}, V_{DS}=-5\text{V}$	-25			A
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10\text{V}, I_D=-5.0\text{A}$ $T_J=125^\circ\text{C}$		42	50	$\text{m}\Omega$
		$V_{GS}=-4.5\text{V}, I_D=-4\text{A}$		53	65	$\text{m}\Omega$
		$V_{GS}=-2.5\text{V}, I_D=-1\text{A}$		80	120	$\text{m}\Omega$
g_{FS}	Forward Transconductance	$V_{DS}=-5\text{V}, I_D=-5\text{A}$	7	11		S
V_{SD}	Diode Forward Voltage	$I_S=-1\text{A}, V_{GS}=0\text{V}$		-0.75	-1	V
I_S	Maximum Body-Diode Continuous Current				-2.2	A

Plastic-Encapsulate MOSFETS

DYNAMIC PARAMETERS

C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-15V, f=1MHz$	954	pF
C_{oss}	Output Capacitance		115	pF
C_{rss}	Reverse Transfer Capacitance		77	pF
R_g	Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	6	Ω

SWITCHING PARAMETERS

Q_g	Total Gate Charge	$V_{GS}=-4.5V, V_{DS}=-15V, I_D=-4A$	9.4	nC
Q_{gs}	Gate Source Charge		2	nC
Q_{gd}	Gate Drain Charge		3	nC
$t_{D(on)}$	Turn-On DelayTime	$V_{GS}=-10V, V_{DS}=-15V, R_L=3.6\Omega, R_{GEN}=6\Omega$	6.3	ns
t_r	Turn-On Rise Time		3.2	ns
$t_{D(off)}$	Turn-Off DelayTime		38.2	ns
t_f	Turn-Off Fall Time		12	ns
t_{rr}	Body Diode Reverse Recovery Time	$I_F=-4A, di/dt=100A/\mu s$	20.2	ns
Q_{rr}	Body Diode Reverse Recovery Charge	$I_F=-4A, di/dt=100A/\mu s$	11.2	nC

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10s$ thermal resistance rating.

B: Repetitive rating, pulse width limited by junction temperature.

C. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

D. The static characteristics in Figures 1 to 6,12,14 are obtained using 80 μs pulses, duty cycle 0.5% max.

E. These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$. The SOA curve provides a single pulse rating.

Typical Characteristics

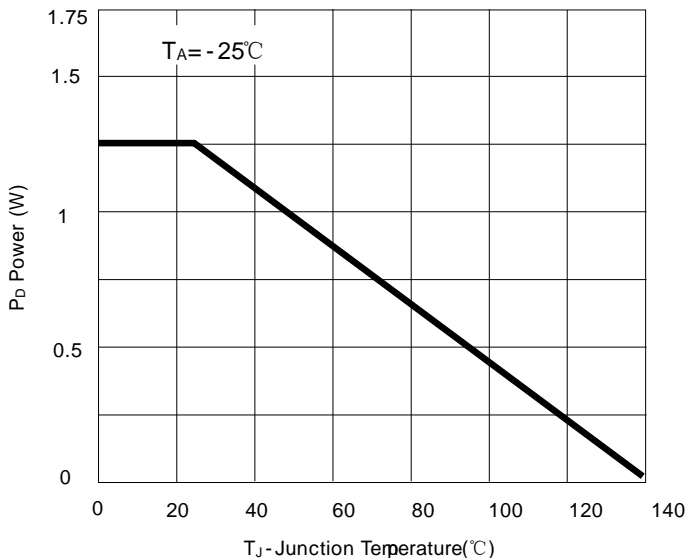


Fig 1. Power Dissipation

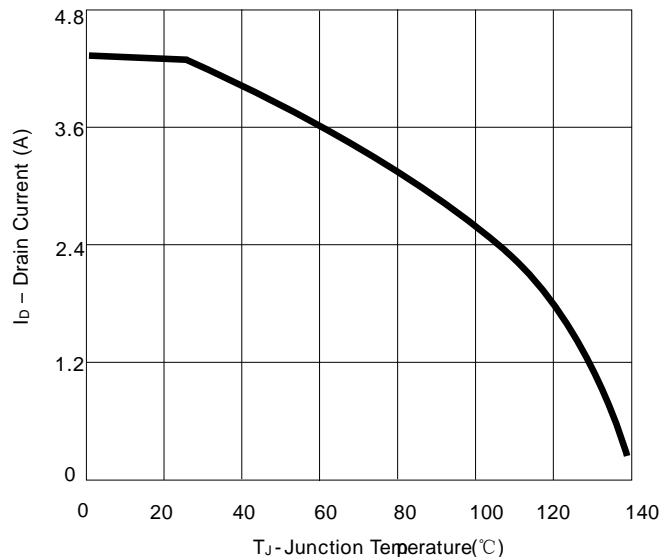


Fig 2. Drain Current

Plastic-Encapsulate MOSFETS

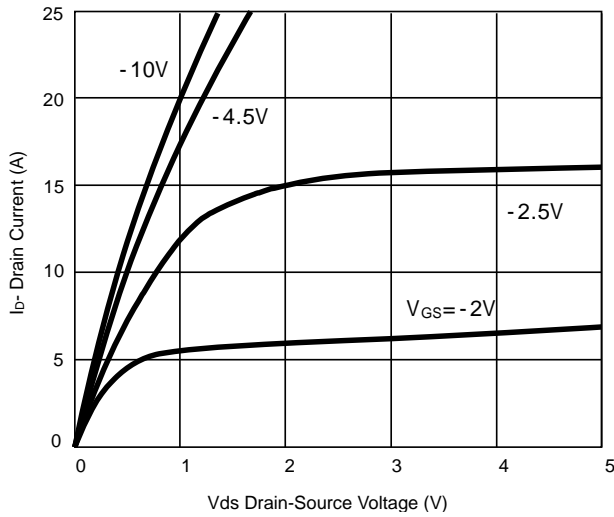


Fig 3. Output Characteristics

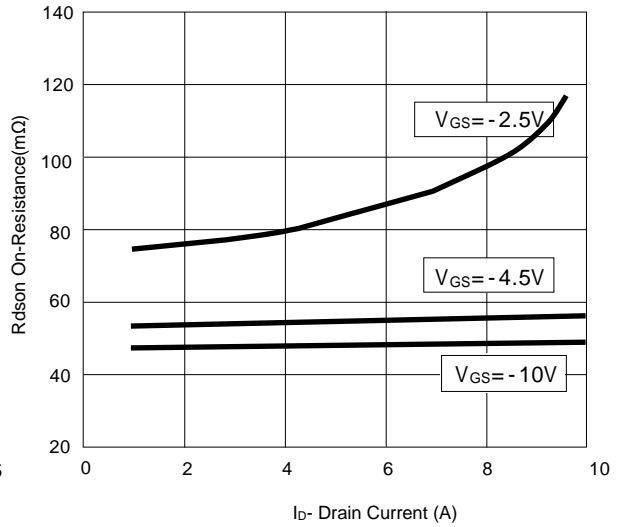


Fig 4. Drain-Source On-Resistance

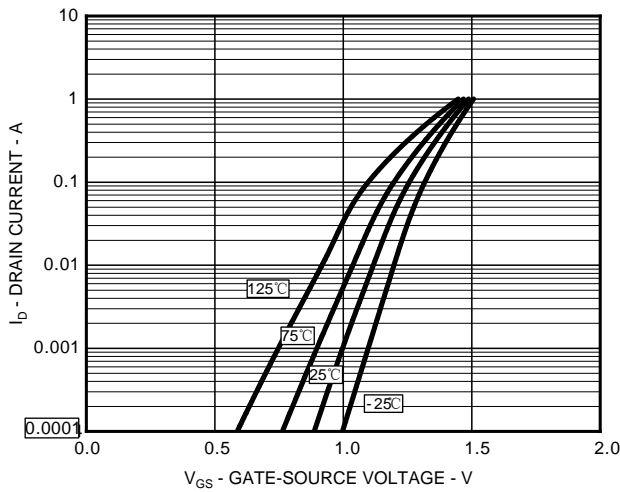


Fig 5. Transfer Characteristics

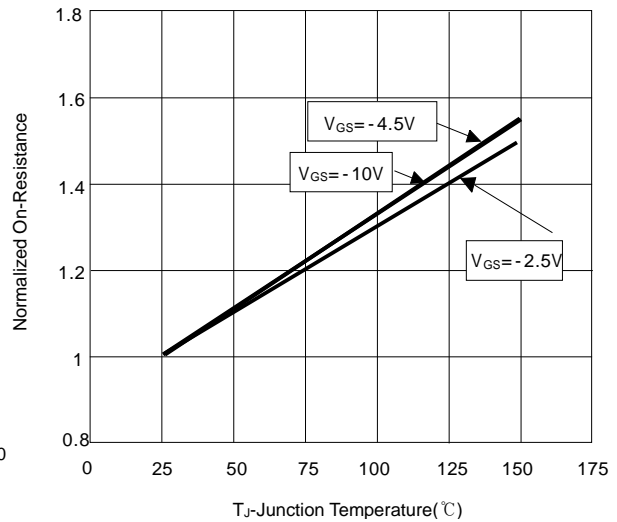


Fig 6. Transfer Characteristics

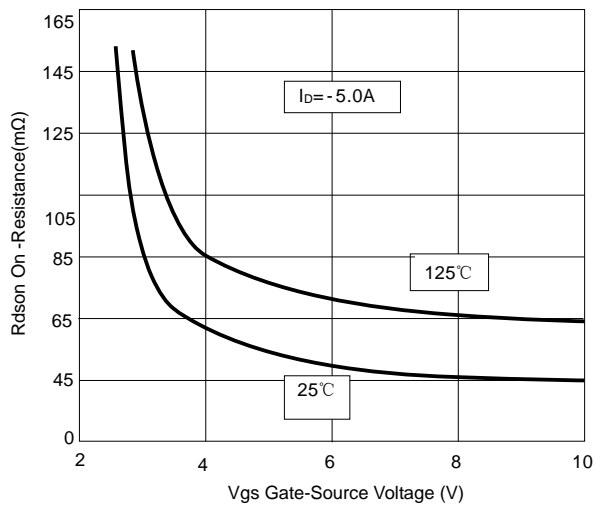


Fig. 7 Rds On vs Vgs

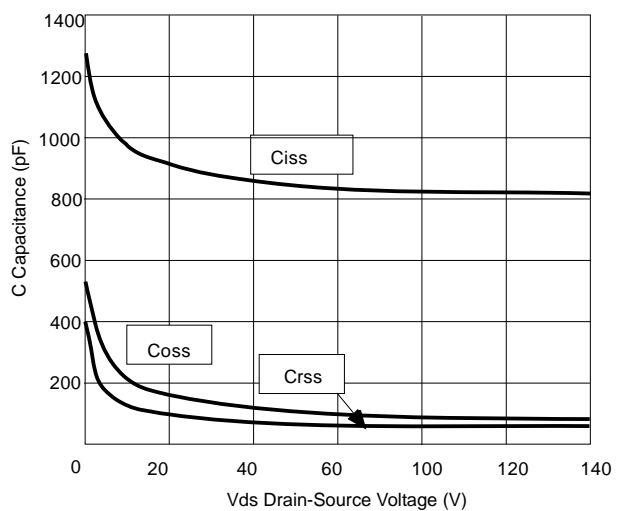


Fig.8 Capacitance vs Vds

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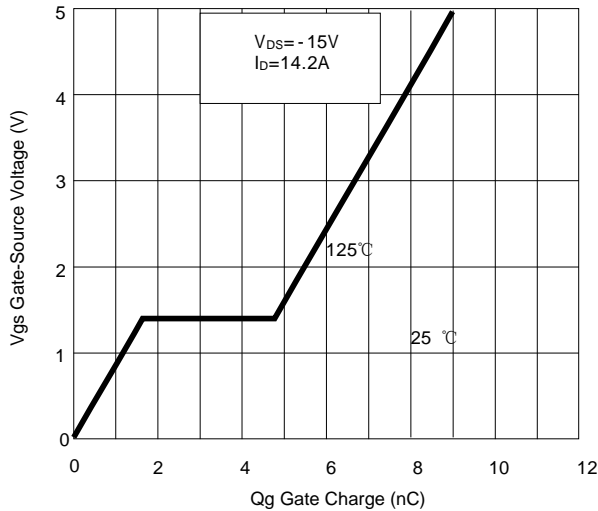


Fig. 9 Gate Charge

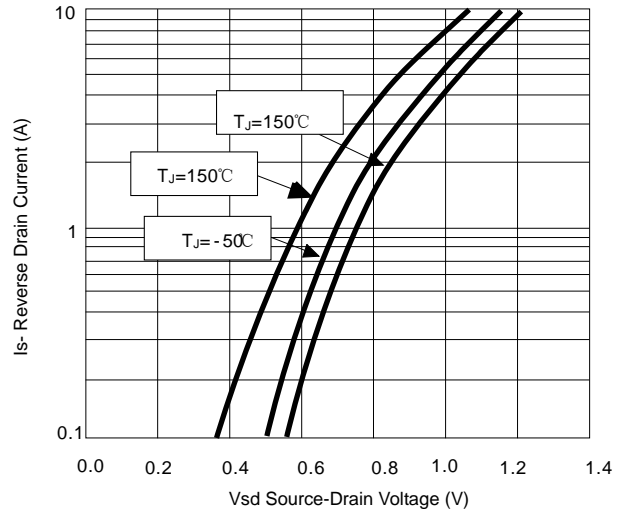


Fig.10 Source- Drain Diode Forward

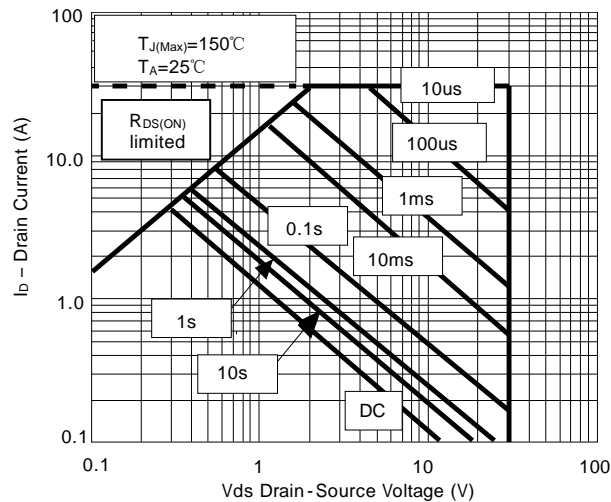


Fig. 11 Safe Operation Area

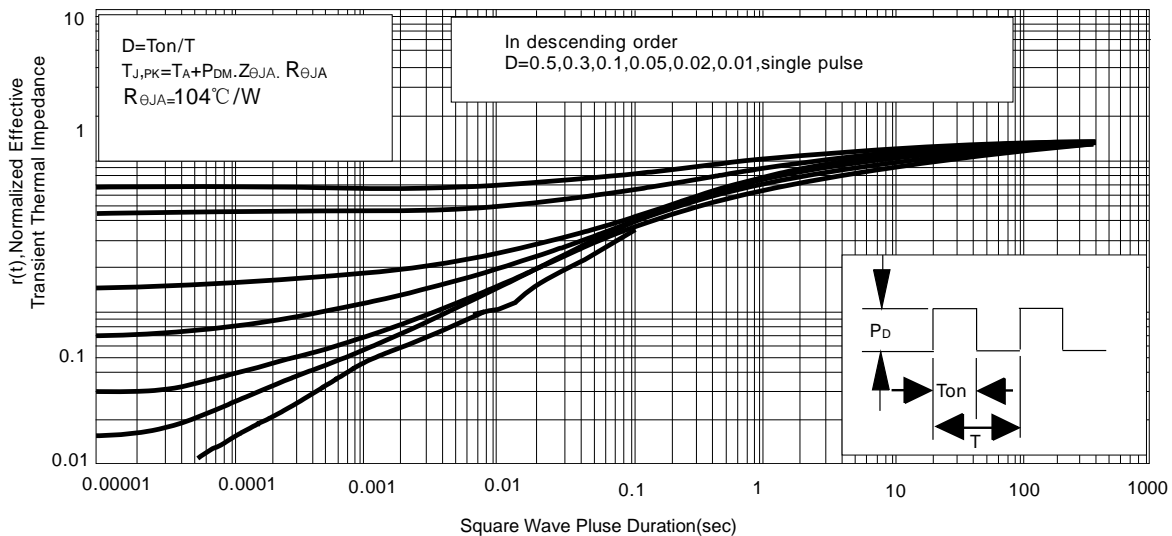
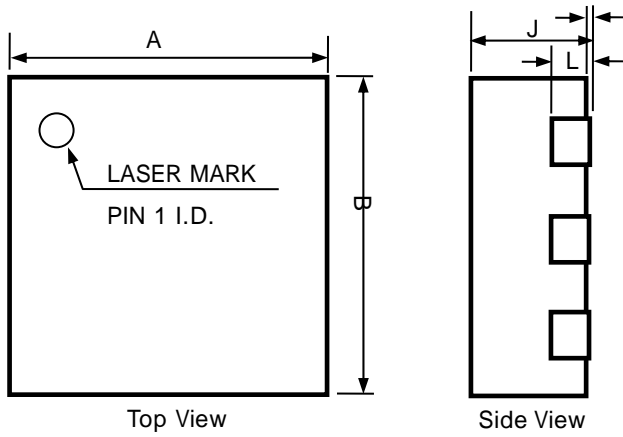


Fig.12 Normalized Maximum Transient Thermal Impedance

Plastic-Encapsulate MOSFETS

Product dimension (DFN2*2-6L)



Dim	Millimeters	
	MIN	MAX
A	1.90	2.10
B	1.90	2.10
C	0.70	1.10
D	0.80	1.00
E	0.55	0.75
E1	0.25 Ref.	
F	0.25	0.35
G	0.20	0.35
H	0.50	1.00
J	0.60	0.80
K	0.00	0.05
L	0.20 Ref.	
M	0.15	--
N	0.20	--
O	0.25	--

