Dual N-Channel 30-V (D-S) MOSFET

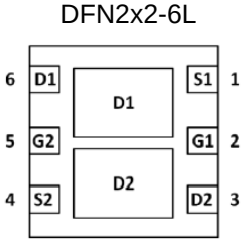
Key Features:
- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

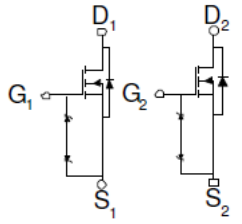
Typical Applications:
- Power Routing
- Li Ion Battery Packs
- Level Shifting and Driver Circuits

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (mΩ)	I_D (A)
30	25 @ V_{GS} = 10V	16
	39 @ V_{GS} = 4.5V	13

Pb-free
RoHS COMPLIANT
HALOGEN FREE

DFN2x2-6L





N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)				
Parameter		**Symbol**	**Limit**	**Units**
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_C=25°C	I_D	16	A
	T_C=70°C		13	
	T_A=25°C		6.9[a]	
	T_A=70°C		5.7[a]	
Pulsed Drain Current [b]		I_{DM}	30	
Continuous Source Current (Diode Conduction) [a]		I_S	1.8	
Power Dissipation	T_C=25°C	P_D	9.9	W
	T_C=70°C		6.3	
	T_A=25°C		1.8[a]	
	T_A=70°C		1.2[a]	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS				
Parameter		**Symbol**	**Maximum**	**Units**
Maximum Junction-to-Ambient [a]	t <= 10 sec	$R_{\theta JA}$	69	°C/W
	Steady State		100	
Maximum Junction-to-Case	Steady State	$R_{\theta JC}$	13	

Notes
a. Surface Mounted on 1” x 1” FR4 Board.
b. Pulse width limited by maximum junction temperature

Electrical Characteristics

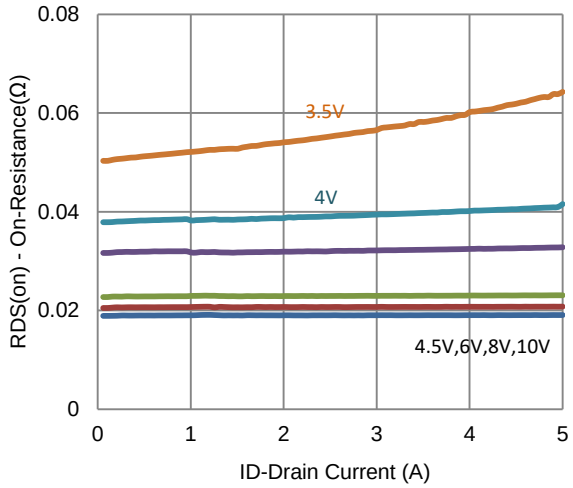
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 uA	1			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24 V, V_{GS} = 0 V			1	uA
		V_{DS} = 24 V, V_{GS} = 0 V, T_J = 55°C			10	
On-State Drain Current [a]	$I_{D(on)}$	V_{DS} = 5 V, V_{GS} = 10 V	10			A
Drain-Source On-Resistance [a]	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 4 A			25	mΩ
		V_{GS} = 4.5 V, I_D = 3 A			39	
Forward Transconductance [a]	g_{fs}	V_{DS} = 15 V, I_D = 4 A		11		S
Diode Forward Voltage [a]	V_{SD}	I_S = 0.9 A, V_{GS} = 0 V		0.78		V
Dynamic [b]						
Total Gate Charge	Q_g	V_{DS} = 15 V, V_{GS} = 4.5 V, I_D = 4 A		6		nC
Gate-Source Charge	Q_{gs}			2.6		
Gate-Drain Charge	Q_{gd}			1.9		
Turn-On Delay Time	$t_{d(on)}$	V_{DS} = 15 V, R_L = 3.8 Ω, I_D = 4 A, V_{GEN} = 10 V, R_{GEN} = 6 Ω		4		ns
Rise Time	t_r			7		
Turn-Off Delay Time	$t_{d(off)}$			19		
Fall Time	t_f			5		
Input Capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1 Mhz		519		pF
Output Capacitance	C_{oss}			70		
Reverse Transfer Capacitance	C_{rss}			55		

Notes

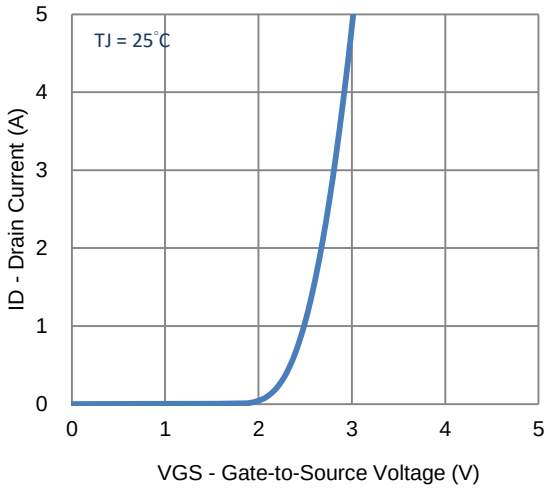
a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing.

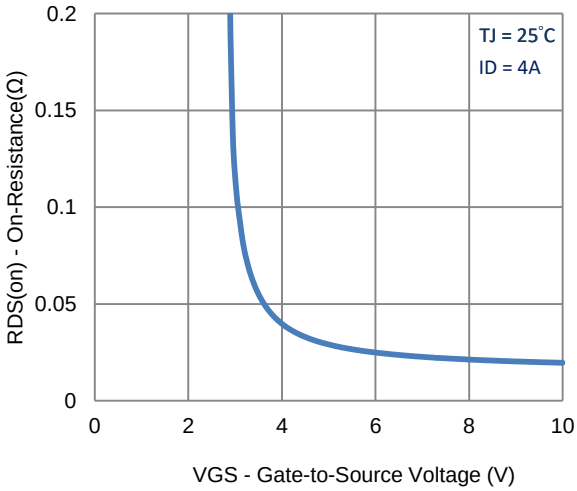
Typical Electrical Characteristics



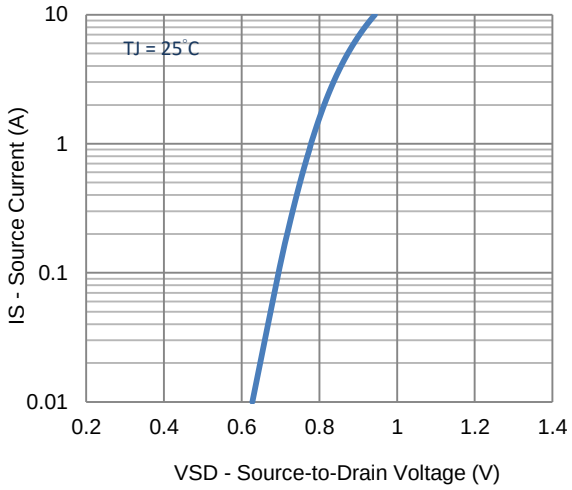
1. On-Resistance vs. Drain Current



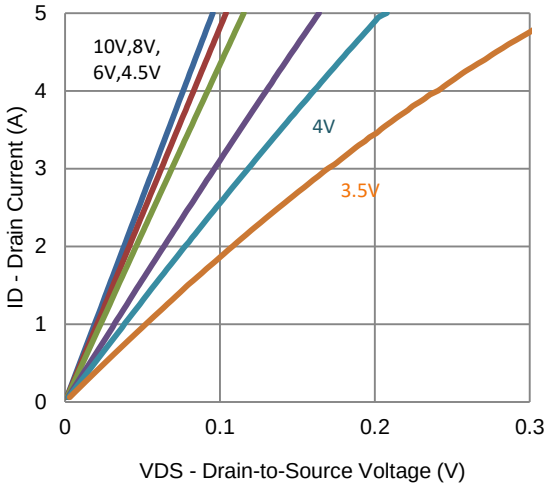
2. Transfer Characteristics



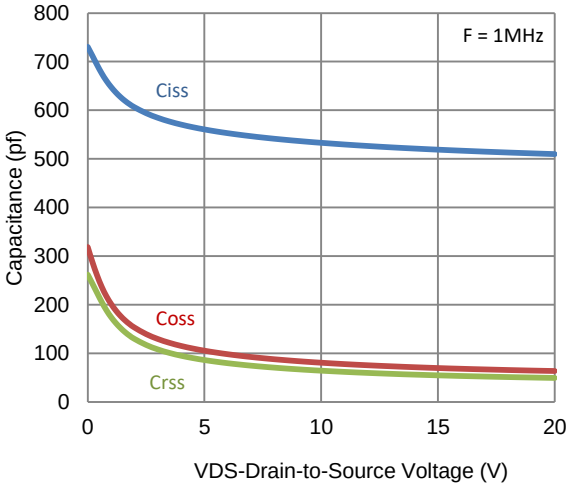
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

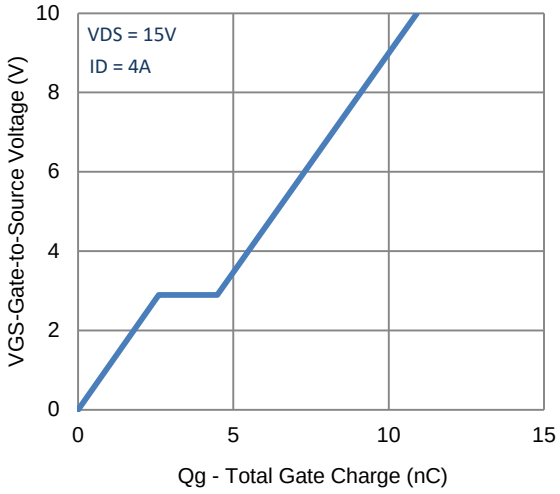


5. Output Characteristics

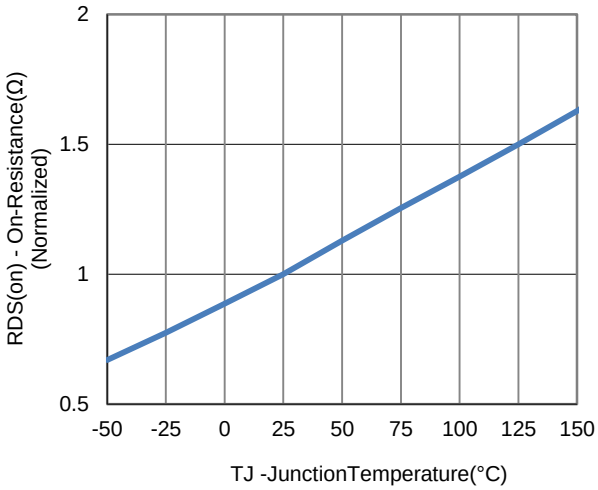


6. Capacitance

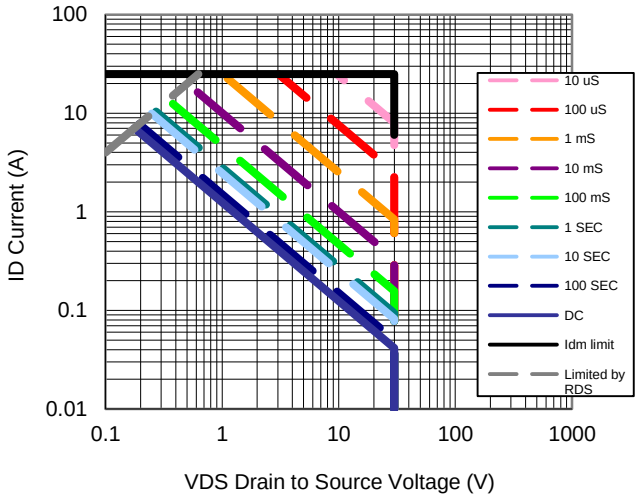
Typical Electrical Characteristics



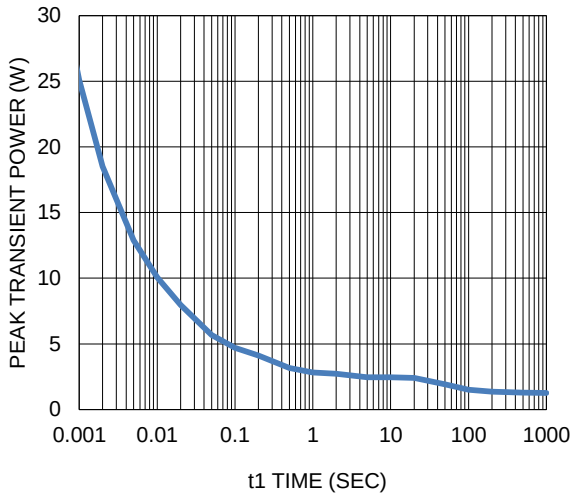
7. Gate Charge



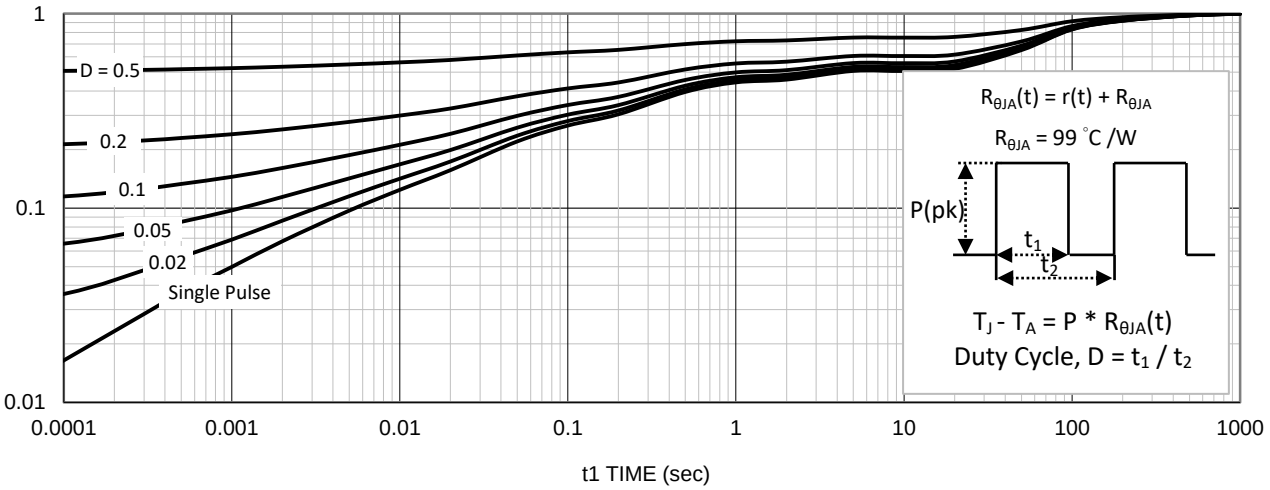
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

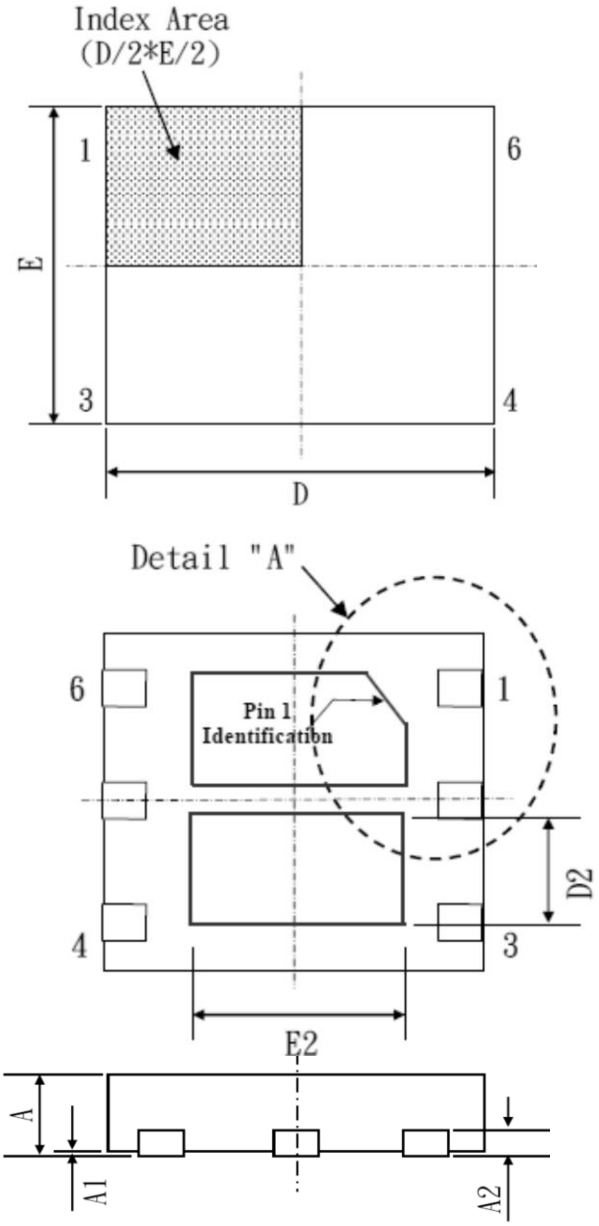


10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient

Package Information



DIM.	MILLIMETERS	
	MIN	MAX
A	0.7	0.8
A1	0	0.06
A2	0.15	0.25
b	0.25	0.4
C	0.2 TYP	
D	1.95	2.05
E2	0.75	1.1
E	1.95	2.05
D2	0.6	0.85
L	0.15	0.35
P	0.6	0.7