

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

FEATURES

- Low $R_{DS(ON)}$ Trench Technology
- Low Thermal Impedance
- Fast Switching Speed

APPLICATIONS

- Battery Powered Instruments
- Portable Computing
- Mobile Phones
- GPS Units and Media Players

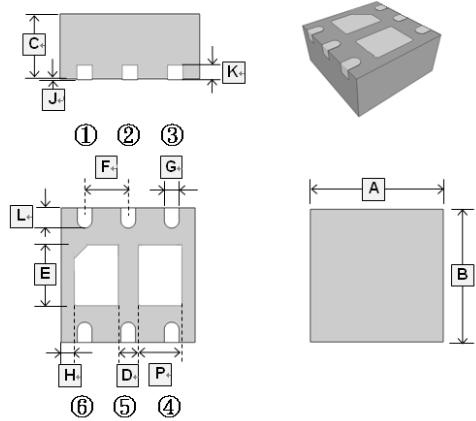
MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
DFN2x2-6L-J	3K	7 inch

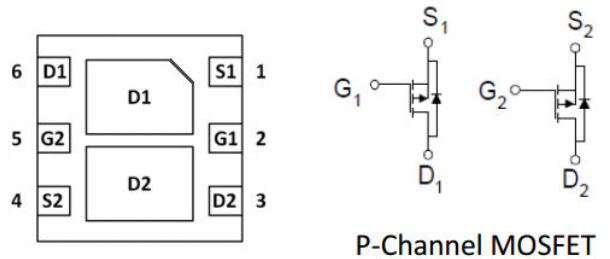
DFN2x2-6L-J



REF.	Millimeter			REF.	Millimeter		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	1.924	2.00	2.076	G	0.25	0.30	0.35
B	1.924	2.00	2.076	H	0.20 BSC.		
C	0.675	0.75	0.80	J	0	-	0.06
D	0.25	0.30	0.35	K	0.15	0.20	0.25
E	0.75	0.86	1.10	L	0.20	0.30	0.38
F	0.65 TYP.			P	0.52	0.65	0.72

ORDER INFORMATION

Part Number	Type
SDT2P03-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹ , @ $V_{GS} = -10V$	$T_A = 25^\circ C$	-2.4	A
	$T_A = 70^\circ C$	-1.9	
Pulsed Drain Current ²	I_{DM}	-10	A
Total Power Dissipation	$T_A = 25^\circ C$	1.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ C$
Thermal Resistance Ratings			
Thermal Resistance from Junction-Ambient ¹	$t \leq 5sec$	83	$^\circ C/W$
	Steady State	125	

ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	$V_{GS}=0, I_D=-250\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$
Forward Transconductance	g_{fs}	-	3.8	-	S	$V_{DS}=-5\text{V}, I_D=-2\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	$V_{DS}=-24\text{V}, V_{GS}=0, T_J=25^\circ\text{C}$
		-	-	-5		$V_{DS}=-24\text{V}, V_{GS}=0, T_J=55^\circ\text{C}$
Drain-Source On-Resistance ³	$R_{DS(ON)}$	-	-	120	m Ω	$V_{GS}=-10\text{V}, I_D=-2\text{A}$
		-	-	170		$V_{GS}=-4.5\text{V}, I_D=-1\text{A}$
Total Gate Charge	Q_g	-	2.6	-	nC	$I_D=-2\text{A}$ $V_{DS}=-15\text{V}$ $V_{GS}=-4.5\text{V}$
Gate-Source Charge	Q_{gs}	-	0.93	-		
Gate-Drain Charge	Q_{gd}	-	0.95	-		
Turn-on Delay Time	$T_{d(on)}$	-	1.5	-	nS	$V_{DS}=-15\text{V}$ $V_{GS}=-10\text{V}$ $I_D=-2\text{A}$ $R_G=3.3\Omega$
Rise Time	T_r	-	25	-		
Turn-off Delay Time	$T_{d(off)}$	-	11	-		
Fall Time	T_f	-	5.2	-		
Input Capacitance	C_{iss}	-	203	-	pF	$V_{GS}=0$ $V_{DS}=-15\text{V}$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	42	-		
Reverse Transfer Capacitance	C_{rss}	-	34	-		
Source-Drain Diode Characteristics						
Continuous Source Current ¹	I_S	-	-	-2.4	A	
Pulsed Source Current ²	I_{SM}	-	-	-10		
Forward on Voltage ³	V_{SD}	-	-	-1.2	V	$I_S=-1\text{A}, V_{GS}=0$
Reverse Recovery Time	t_{rr}	-	8.3	-	nS	$I_F=-2\text{A}, dI/dt=100\text{A}/\mu\text{s}$
Reverse Recovery Charge	Q_{rr}	-	2	-	nC	$T_J=25^\circ\text{C}$

Notes:

1. Surface Mounted on 1"x1" FR4 Board with 2OZ copper.
2. Pulse width limited by maximum junction temperature.
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

CHARACTERISTIC CURVE

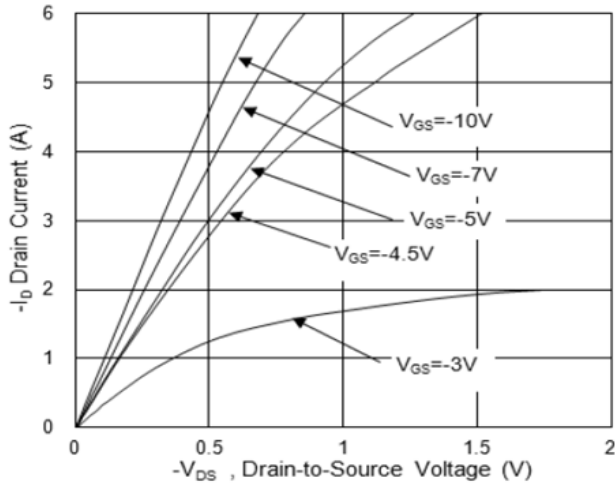


Fig.1 Typical Output Characteristics

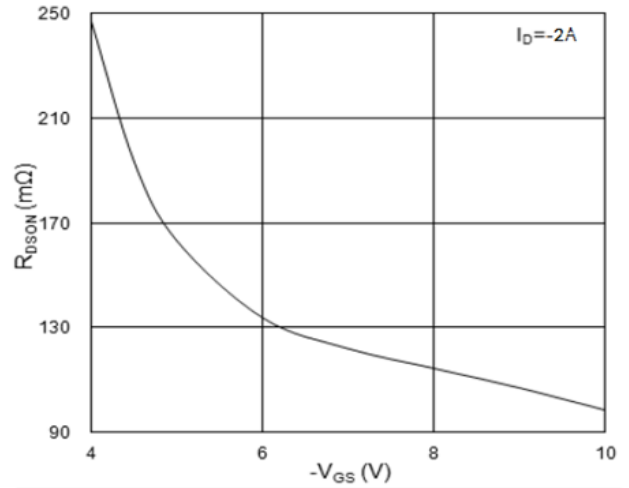


Fig.2 On-Resistance v.s Gate-Source

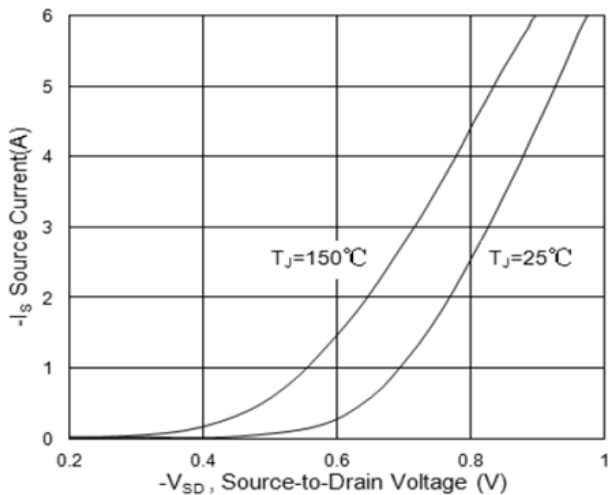


Fig.3 Forward Characteristics of Reverse

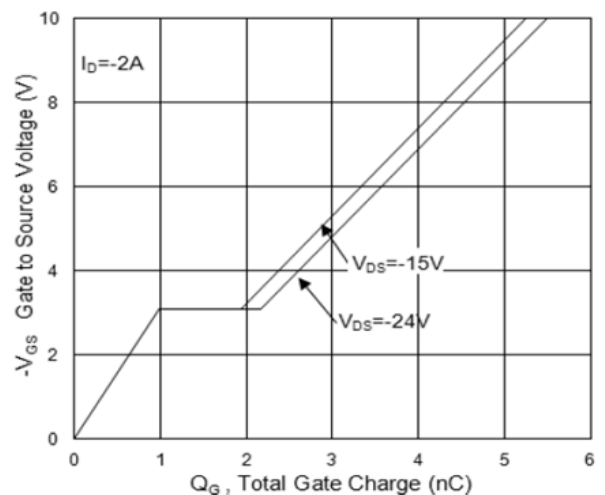


Fig.4 Gate-Charge Characteristics

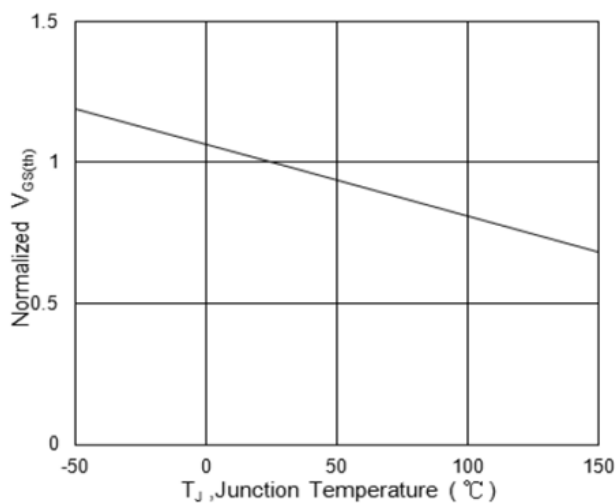


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

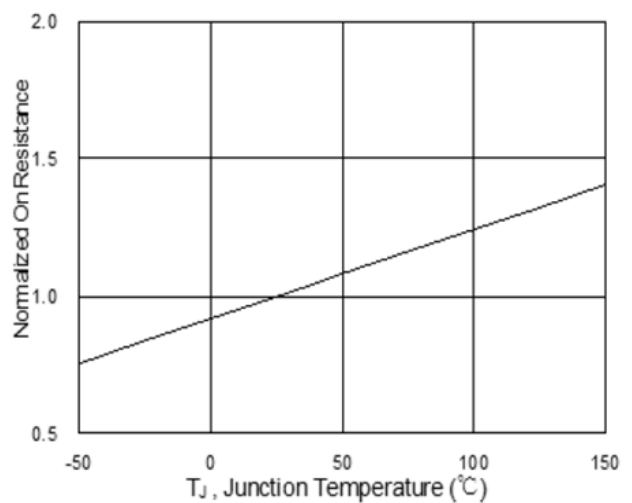


Fig.6 Normalized $R_{DS(on)}$ v.s T_J

CHARACTERISTIC CURVE

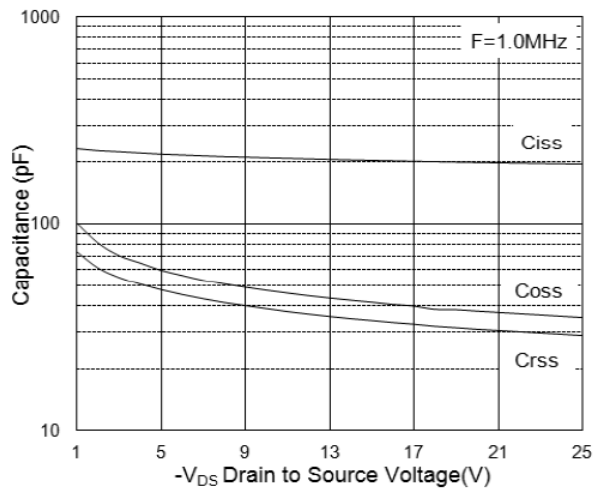


Fig.7 Capacitance

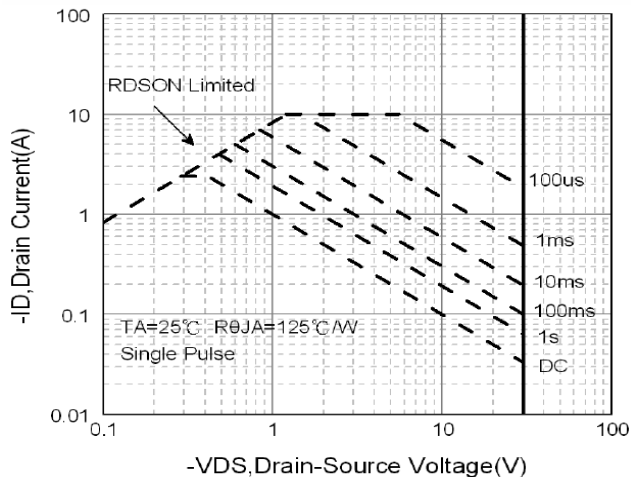


Fig.8 Safe Operating Area

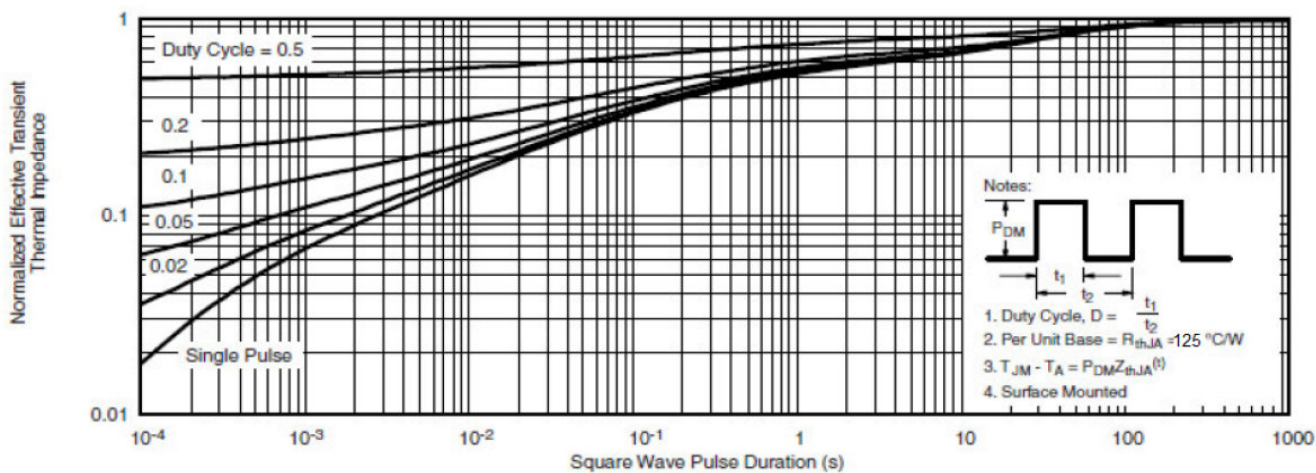


Fig.9 Normalized Maximum Transient Thermal Impedance

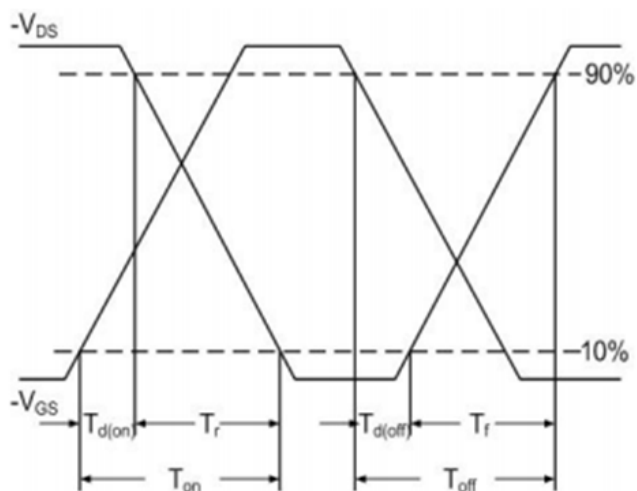


Fig.10 Switching Time Waveform

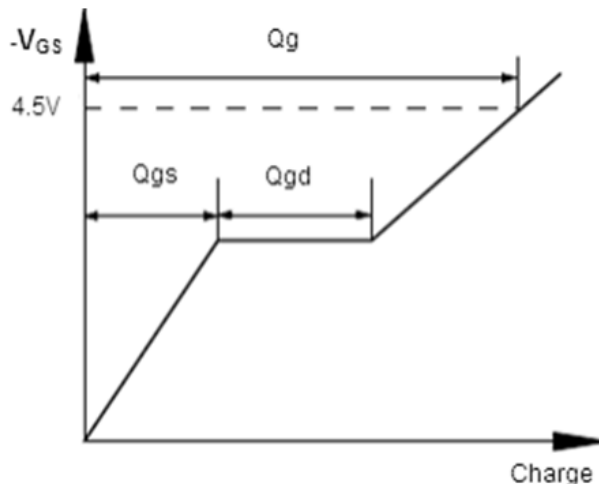


Fig.11 Gate Charge Waveform