Elektronische Bauelemente

SDT3P02-C

-3.5A, -20V, $R_{DS(ON)}$ 75 mΩ
Dual-P Enhancement Mode MOSFET

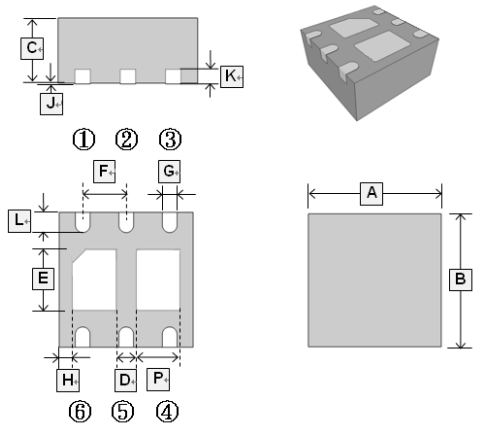
RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

The SDT3P02-C is the highest performance trench Dual-P MOSFETs with extreme high cell density, which provide excellent R_{DSON} and gate charge for most of the synchronous buck converter applications.

The SDT3P02-C meet the RoHS and Green Product requirement with full function reliability approved.

DFN2x2-6L-J

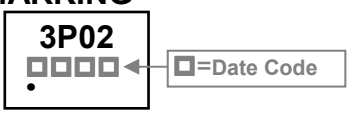


REF.	Millimeter			REF.	Millimeter		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	2.00 BSC.			G	0.30 BSC		
B	2.00 BSC.			H	0.20 BSC		
C	0.675	0.75	0.80	J	0	-	0.06
D	0.30 Typ.			K	0.15	0.20	0.25
E	0.75	0.86	1.1	L	0.20	0.30	0.38
F	0.65BSC			P	0.52	0.65	0.72

APPLICATIONS

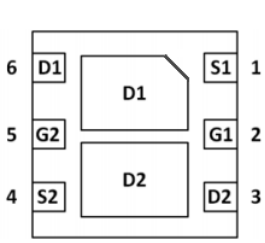
- Power Management In Note Book
- Portable Equipment
- DC/DC Converter
- Load Switch

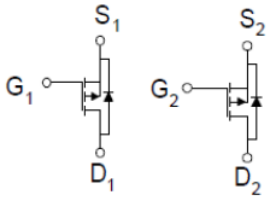
MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
DFN2×2-6L-J	3K	7 inch





P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [1] @V_{GS}=4.5V	T_A=25°C	I_D	-3.5	A
	T_A=70°C		-2.8	A
Pulsed Drain Current [3]		I_{DM}	-12	A
Total Power Dissipation	T_A=25°C	P_D	1.5	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Data				
Maximum Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	t≦5sec ,83	°C / W
			Steady State , 125	°C / W
Maximum Thermal Resistance from Junction to Ambient [2]			250	°C / W
Maximum Thermal Resistance from Junction to Case [1]		$R_{\theta JC}$	8.4	°C / W

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	-20	-	-	V	V_{GS}=0, I_D= -250μA
Breakdown Voltage Temperature Coefficient	$\triangle BV_{DSS}/\triangle Tj$	-	-0.01	-	V/°C	Reference to 25°C,I_D= -1mA
Gate-Threshold Voltage	$V_{GS(th)}$	-0.5	-	-1.2	V	V_{DS}=V_{GS}, I_D= -250μA
Forward Transfer conductance	g_{FS}	-	9	-	S	V_{DS}= -5V, I_D= -3A
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0,V_{GS}= ±12V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS}= -16V, V_{GS}=0,T_J=25°C
		-	-	-5		V_{DS}= -16V, V_{GS}=0,T_J=55°C
Drain-Source On-Resistance [4]	$R_{DS(ON)}$	-	-	75	mΩ	V_{GS}= -4.5V, I_D= -3A
		-	-	105		V_{GS}= -2.5V, I_D= -2A
Total Gate Charge	Q_g	-	9.7	-	nC	V_{DS}= -15V V_{GS}= -4.5V I_D= -3A
Gate-Source Charge	Q_{gs}	-	2.05	-		
Gate-Drain Charge	Q_{gd}	-	2.43	-		
Turn-On Delay Time	$T_{d(ON)}$	-	4.8	-	nS	V_{DS}= -10V V_{GS}= -4.5V I_D= -3A R_G=3.3Ω R_D=3.33Ω
Rise Time	T_r	-	9.6	-		
Turn-Off Delay Time	$T_{d(OFF)}$	-	52	-		
Fall Time	T_f	-	8.4	-		
Input Capacitance	C_{iss}	-	686	-	pF	V_{DS}= -15V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	90.8	-		
Reverse Transfer Capacitance	C_{rss}	-	80.4	-		
Source-Drain Diode						
Continuous Source Current[1]	I_S	-	-	-3.5	A	
Pulsed Source Current[3]	I_{SM}	-	-	-12	A	
Forward On Voltage[4]	V_{SD}	-	-0.7	-1.2	V	I_S= -1A, V_{GS}=0V
Reverse Recovery Time	T_{rr}	-	8.4	-	ns	I_S= -3A,V_{GS}=0V, dI/dt=100A/μs
Reverse Recovery Charge	Q_{rr}	-	3.3	-	nC	

Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. Surface mounted on FR4 Board using the minimum recommended pad size
3. Pulse width limited by maximum junction temperature
4. The data tested by pulsed, pulse width ≦ 300μs, duty cycle ≦ 2%

P-CH CHARACTERISTIC CURVE

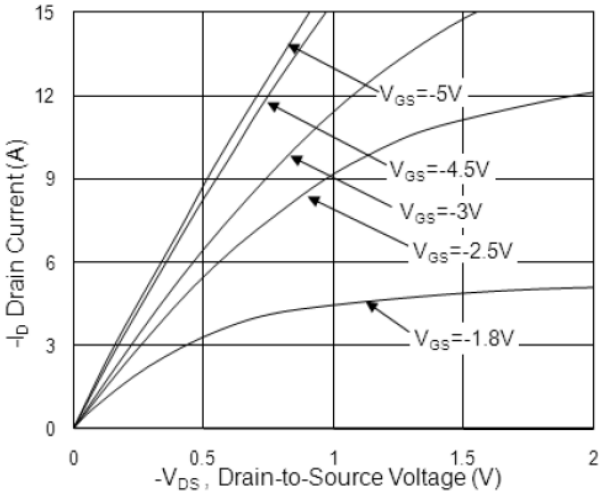


Fig.1 Typical Output Characteristics

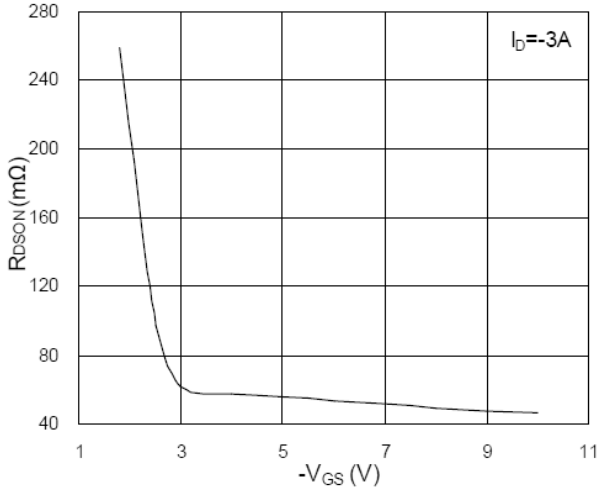


Fig.2 On-Resistance vs. Gate-Source

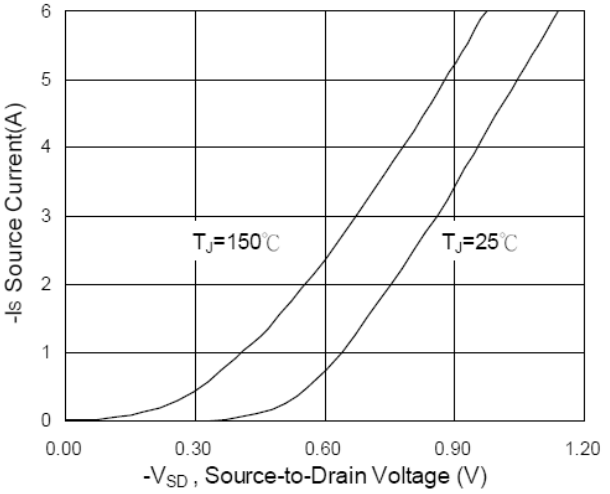


Fig.3 Forward Characteristics Of Reverse

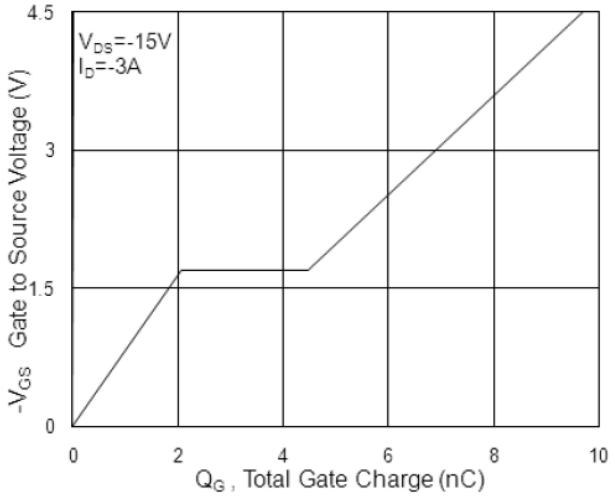


Fig.4 Gate-Charge Characteristics

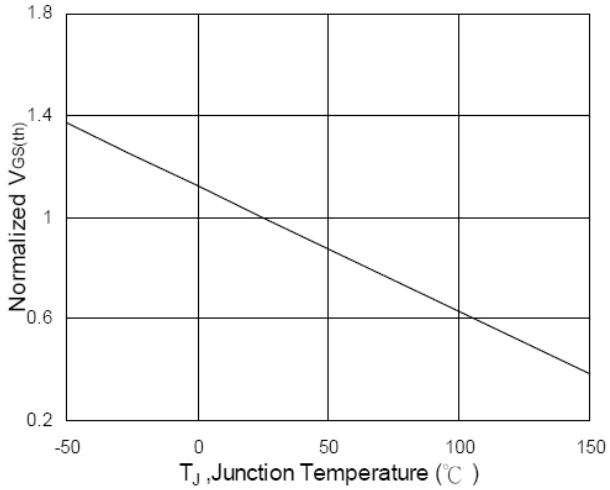


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

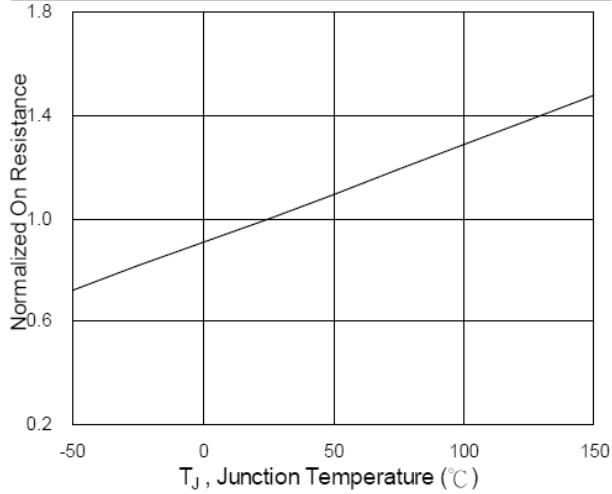


Fig.6 Normalized R_{DSON} vs. T_J

P-CH CHARACTERISTIC CURVE

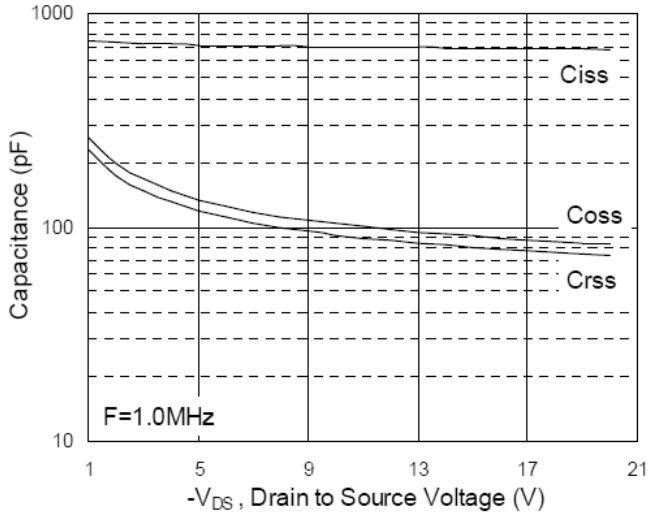


Fig.7 Capacitance

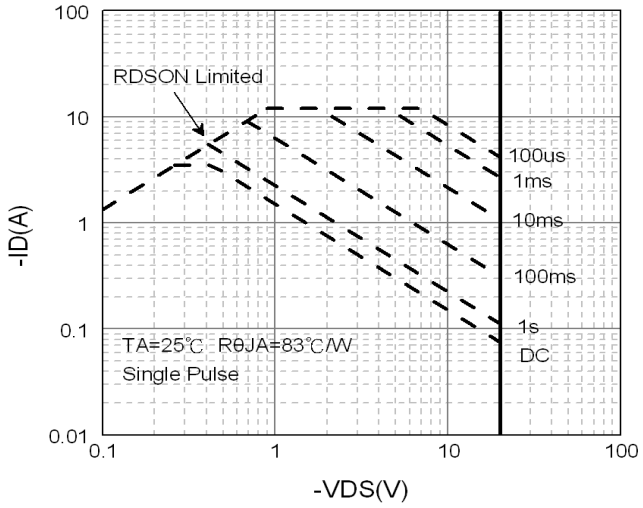


Fig.8 Safe Operating Area

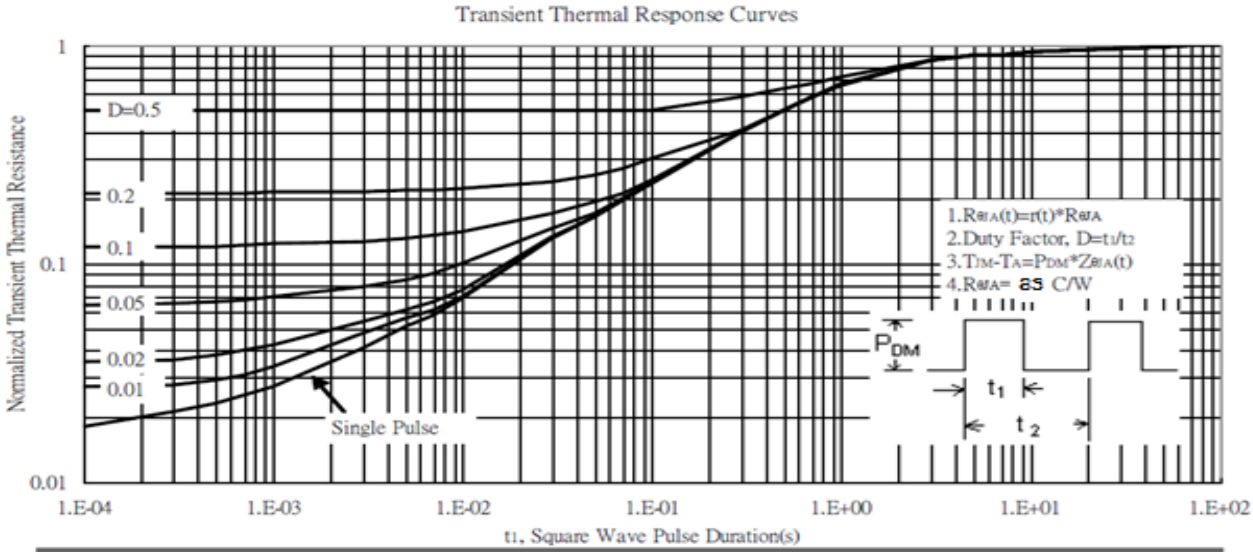


Fig.9 Normalized Maximum Transient Thermal Impedance

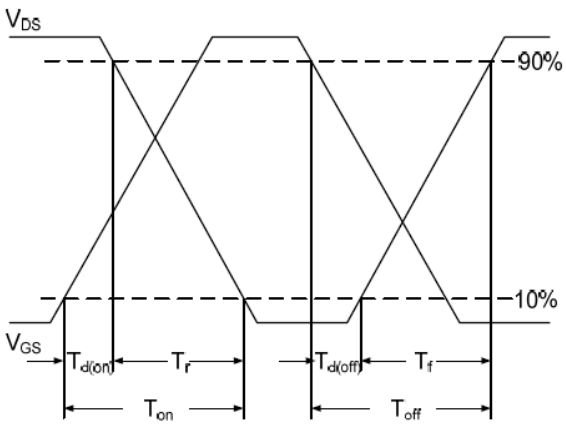


Fig.10 Switching Time Waveform

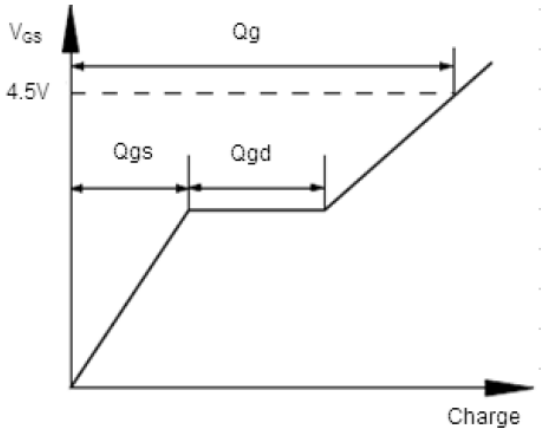


Fig.11 Gate Charge Waveform