SK2371AA

P-Ch 100V Fast Switching MOSFETs

- Super Low Gate Charge
- Excellent Cdv/dt effect decline
- Green Device Available
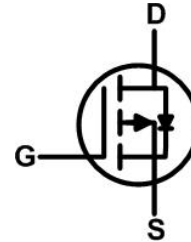- Advanced high cell density Trench technology
- Marking : K71

Description

The SK2371AA s the high cell density trenched P-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

The 100P02 meets the RoHS and Green Product requirement with full function reliability approved.

Product Summary

BVDSS	RDSON	ID
-100V	0.65Ω	-2A

SOT23 Pin Configuration

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_A=25°C$	Continuous Drain Current, V_{GS} @ -10V[1]	-2	A
$I_D@T_A=70°C$	Continuous Drain Current, V_{GS} @ -10V[1]	-1.5	A
I_{DM}	Pulsed Drain Current[2]	-3	A
$P_D@T_A=25°C$	Total Power Dissipation[3]	1	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{θJA}$	Thermal Resistance Junction-ambient [1]	---	125	°C/W
$R_{θJC}$	Thermal Resistance Junction-Case[1]	---	80	°C/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-100	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BVDSS Temperature Coefficient	Reference to 25℃ , I_D=-1mA	---	-0.0624	---	V/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V , I_D=-1.5A	---	0.52	0.65	Ω
		V_{GS}=-4.5V , I_D=-1A	---	0.56	0.7	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1.0	-1.5	-2.5	V
$\triangle V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	4.5	---	mV/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-80V , V_{GS}=0V , T_J=25℃	---	---	10	uA
		V_{DS}=-80V , V_{GS}=0V , T_J=55℃	---	---	100	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=$\pm$20V , V_{DS}=0V	---	---	$\pm$100	nA
gfs	Forward Transconductance	V_{DS}=-5V , I_D=-0.8A	---	3	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	16	32	Ω
Q_g	Total Gate Charge (-4.5V)	V_{DS}=-15V , V_{GS}=-4.5V , I_D=-0.5A	---	4.5	---	nC
Q_{gs}	Gate-Source Charge		---	1.14	---	
Q_{gd}	Gate-Drain Charge		---	1.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-50V , V_{GS}=-10V , R_G=3.3Ω I_D=-0.5A	---	13.6	---	ns
T_r	Rise Time		---	6.8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	34	---	
T_f	Fall Time		---	3	---	
C_{iss}	Input Capacitance	V_{DS}=-15V , V_{GS}=0V , f=1MHz	---	553	---	pF
C_{oss}	Output Capacitance		---	29	---	
C_{rss}	Reverse Transfer Capacitance		---	20	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	---	---	-0.9	A
I_{SM}	Pulsed Source Current[2,4]		---	---	-1.8	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=-1A , T_J=25℃	---	---	-1.2	V

Note :

1. The data tested by surface mounted on a 1 inch[2] FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width $\leqq$ 300us , duty cycle $\leqq$ 2%
3. The power dissipation is limited by 150℃ junction temperature
4. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.
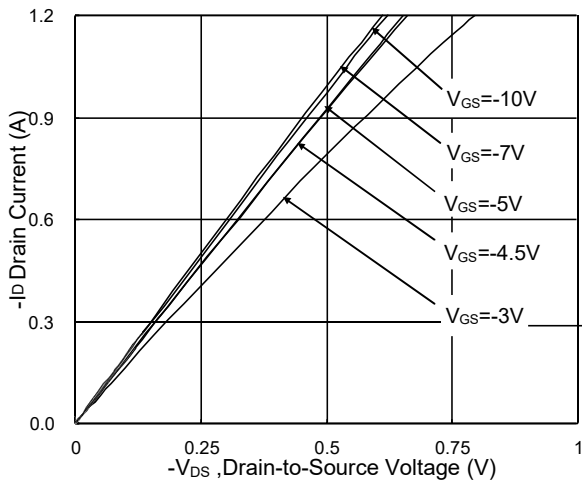
Typical Characteristics
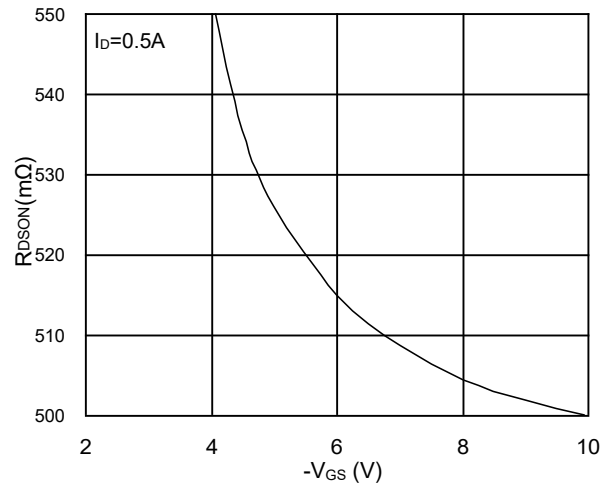

Fig.1 Typical Output Characteristics
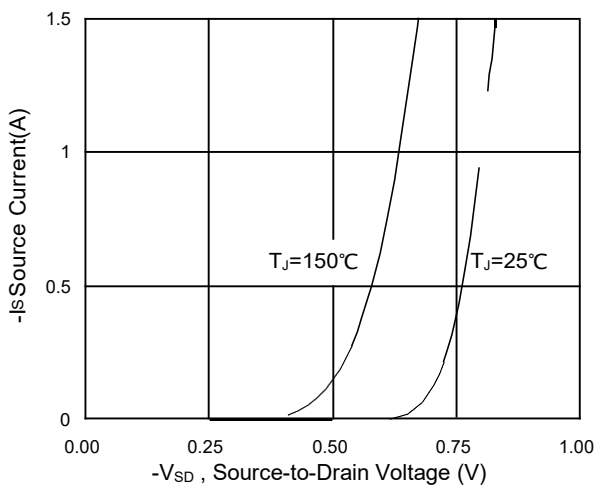

Fig.2 On-Resistance vs. Gate-Source

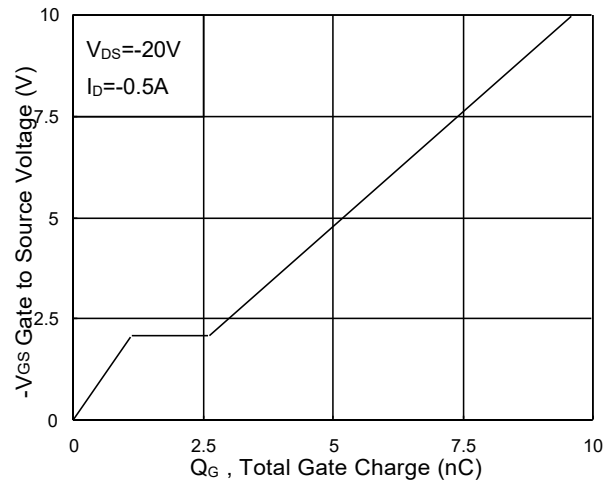
Fig.3 Forward Characteristics Of Reverse

Fig.4 Gate-Charge Characteristics

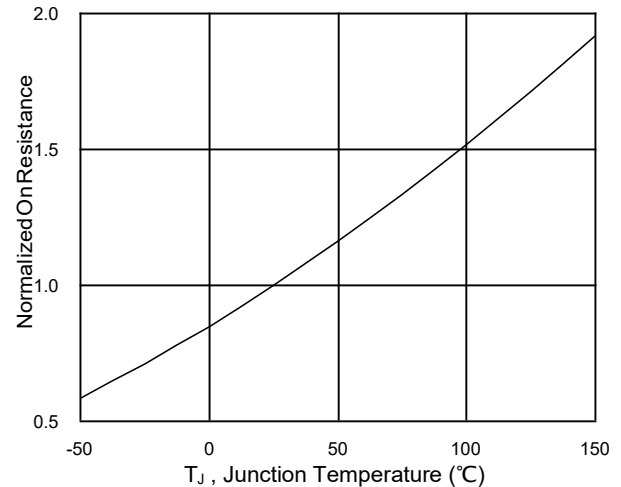**Fig.5 Normalized V$_{GS(th)}$ vs. T$_J$**

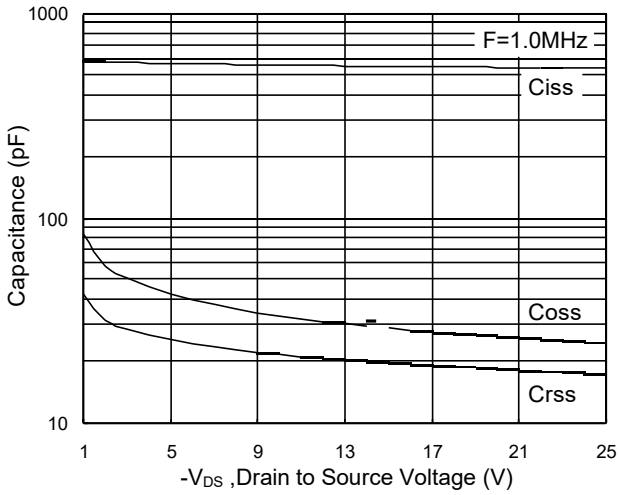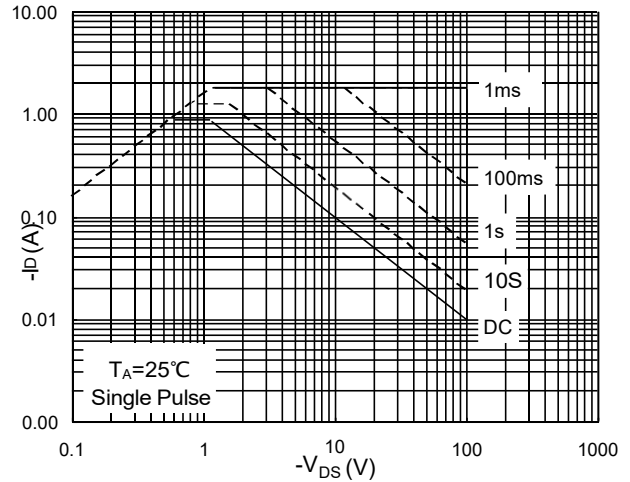**Fig.6 Normalized R$_{DSON}$ vs. T$_J$**

Fig.7 Capacitance

Fig.8 Safe Operating Area

Fig.9 Normalized Maximum Transient Thermal Impedance
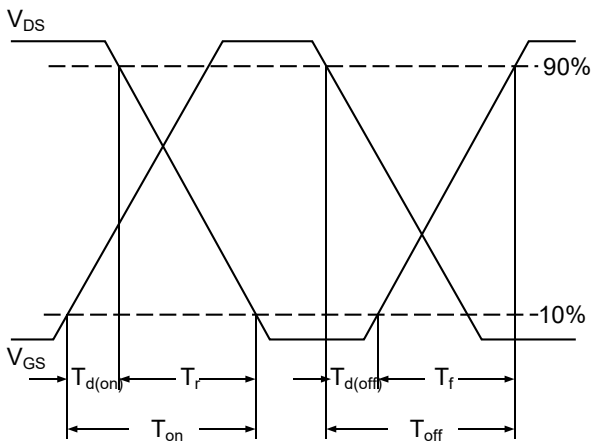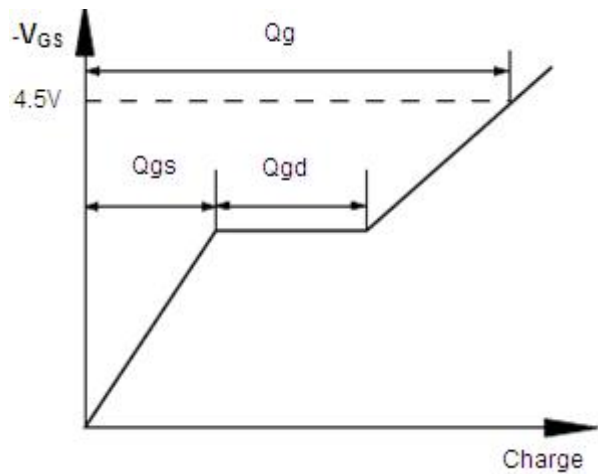
Fig.10 Switching Time Waveform

Fig.11 Gate Charge Waveform

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