

P-channel Trench MOSFET

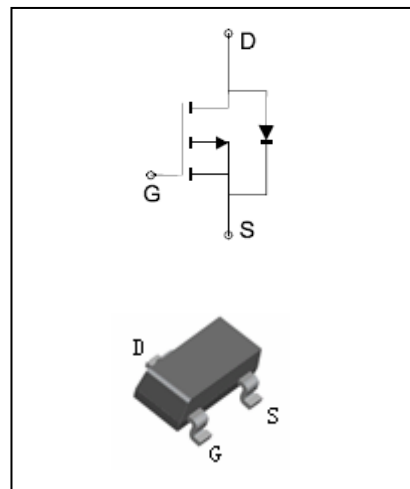
STJ001SF

FEATURES

- Low $V_{GS(th)}$: $V_{GS(th)} = -0.6 \sim -1.4V$
- Small footprint due to small package
- Low $R_{DS(ON)}$: $R_{DS(ON)} = 68m\Omega$ (Typ.)



Lead-free



APPLICATIONS

- Power Management in Note book.
- Portable Equipment.

ORDERING INFORMATION

Type No.	Marking	Package Code
STJ001SF	J01	SOT-23

MAXIMUM RATING @ $T_a=25^\circ C$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	-20	V
V_{GSS}	Gate -Source voltage	± 12	V
I_D	Drain current (DC)	-2.8	A
I_{DP}	Pulsed Drain current	-11.2	A
P_D	Power Dissipation	0.5	W
$R_{\theta JA}$	Thermal resistance, Junction-to-Ambient	250	$^\circ C/W$
T_J, T_{stg}	Operating Junction and Storage Temperature	-55~150	$^\circ C$



P-channel Trench MOSFET

STJ001SF

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.6	-	-1.4	
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=12V$	-	-	100	nA
		$V_{DS}=0V, V_{GS}=-12V$	-	-	-100	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$	-	-	1	μA
Drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=-5.0V, I_D=-1.4A$	-	68	88	m Ω
		$V_{GS}=-2.5V, I_D=-1.4A$	-	72	93	
Forward voltage	V_{SD}	$V_{GS}=0V, I_S=-0.5A$	-	-0.9	-1.3	V
Forward transfer conductance	g_{fs}	$V_{DS}=-5V, I_D=-2.8A$	-	15	-	S
Source current	I_S	Integral reverse diode in the MOSFET	-	-	-0.5	A
Sourcecurrent(Plused)	I_{SM}		-	-	-2.8	
Total Gate Charge	Q_g	$V_{DD}=-10V, V_{GS}=-5V, I_D=-2.8A$	-	8.0	12	nC
Gate-Source Charge	Q_{gs}		-	1.3	2.0	
Gate-Drain Charge	Q_{gd}		-	2.3	3.5	
Input capacitance	C_{ISS}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$	-	880	1320	pF
Output capacitance	C_{OSS}		-	210	320	
Reverse transfer capacitance	C_{RSS}		-	110	170	
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD}=-10V, I_D=-2.8A,$ $R_G=10\Omega$	-	5.2	-	ns
Rise Time	t_R		-	10	-	
Turn-Off Delay Time	$t_{D(OFF)}$		-	17.6	-	
Fall Time	t_F		-	10	-	

P-channel Trench MOSFET

STJ001SF

TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

Fig. 1 $I_D - V_{DS}$

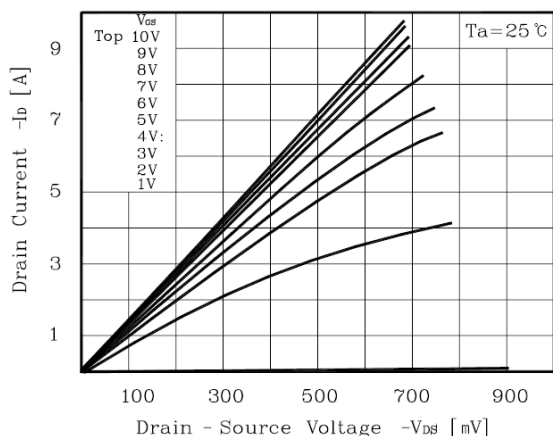


Fig. 2 $I_D - V_{GS}$

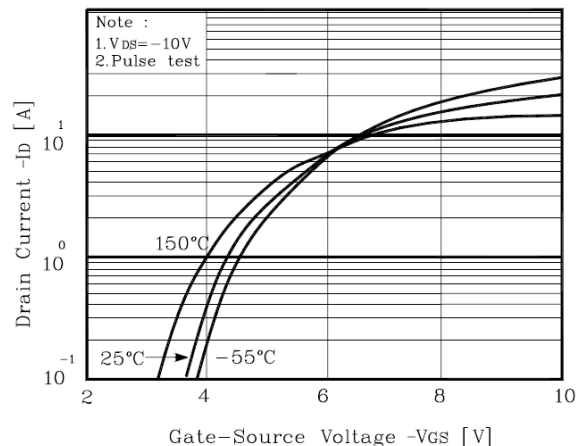


Fig. 3 $R_{DS(on)} - I_D$

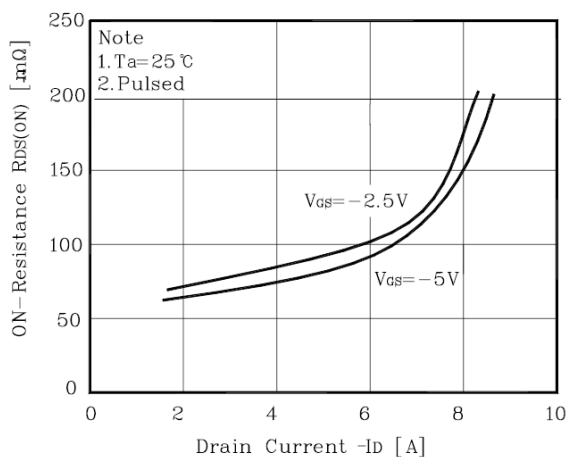


Fig. 4 $I_S - V_{SD}$

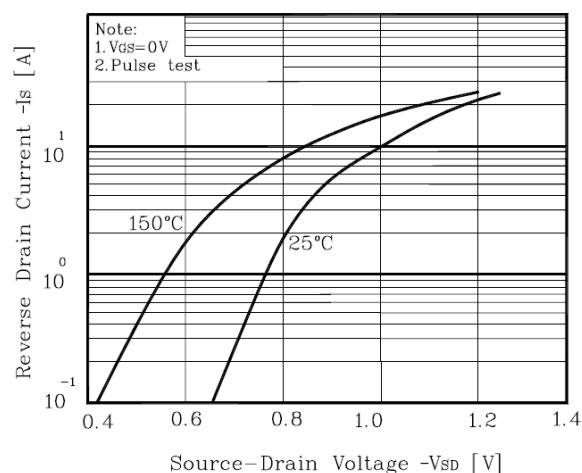


Fig. 5 Capacitance - V_{DS}

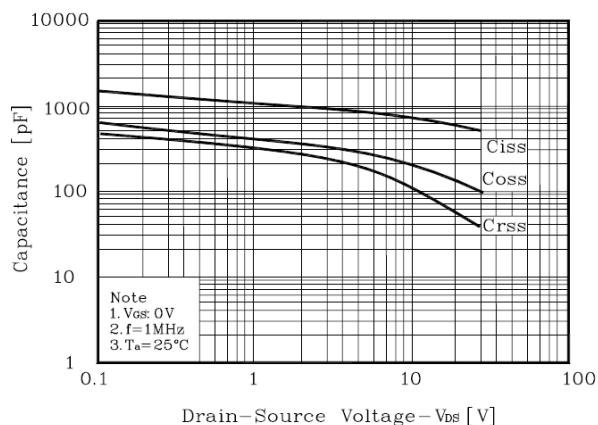
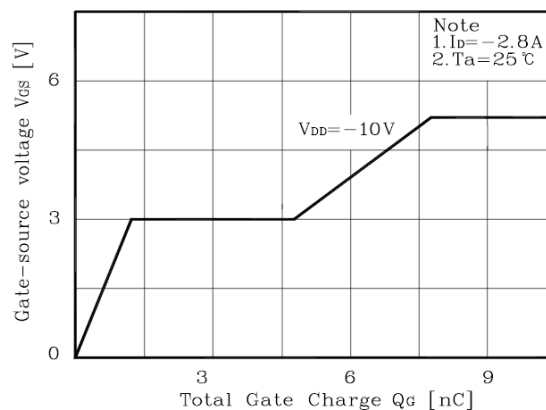


Fig. 6 $V_{GS} - Q_G$



P-channel Trench MOSFET

STJ001SF

Fig. 7 $V_{DS} - T_J$

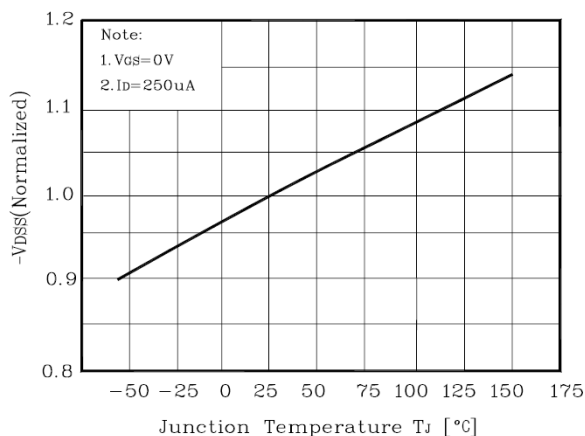


Fig. 8 $R_{DS(on)} - T_J$

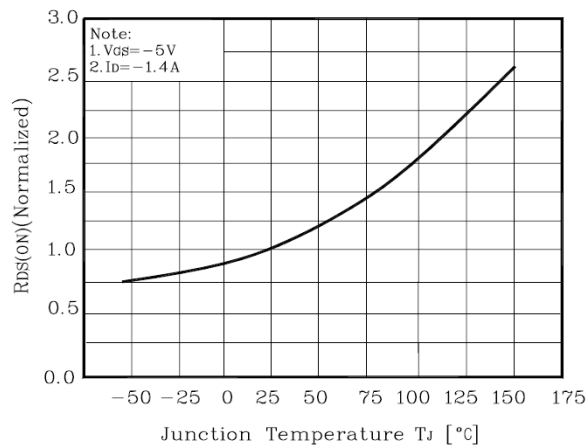


Fig. 9 $I_D - T_a$

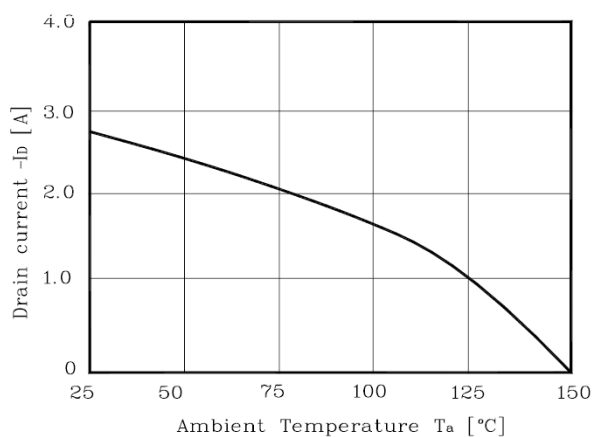
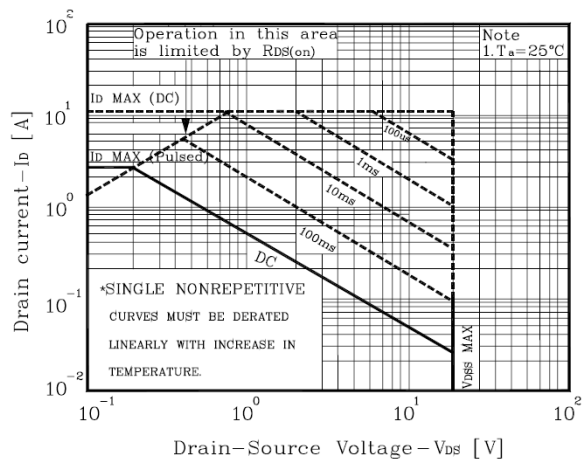


Fig. 10 Safe Operating Area



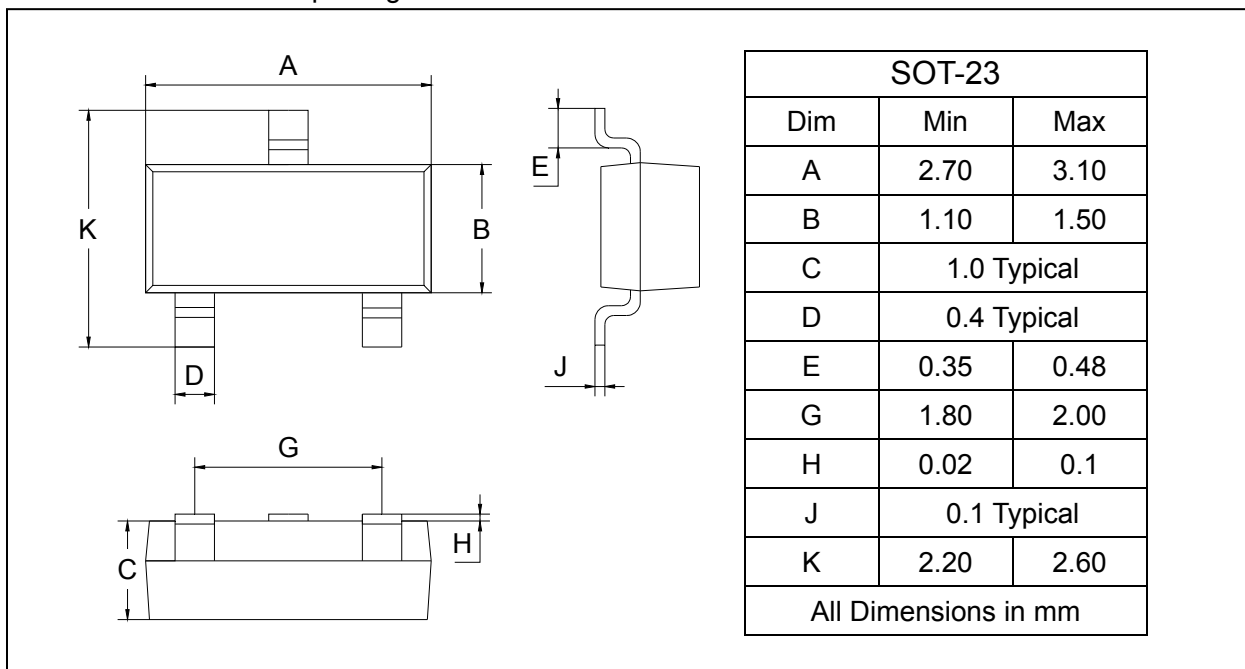
P-channel Trench MOSFET

STJ001SF

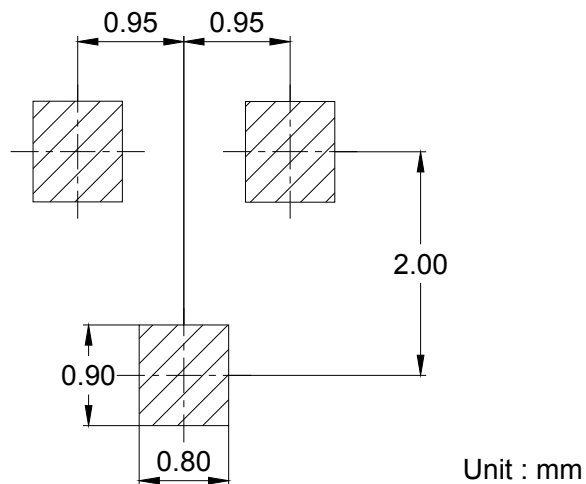
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
STJ001SF	SOT-23	3000/Tape&Reel