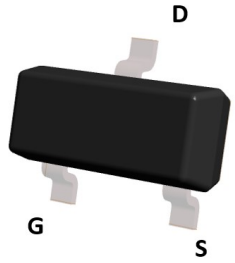
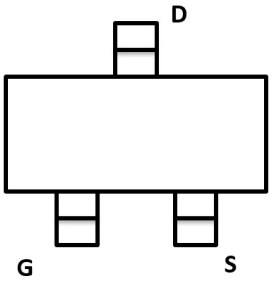
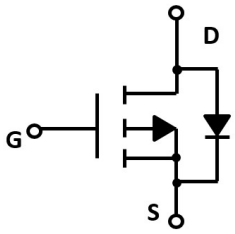
P-Channel Enhancement Mode Field Effect Transistor



Top View





SOT-23

Product Summary

- V_{DS} -60 V
- I_D -0.17 A
- $R_{DS(ON)}$(at V_{GS}=-10V) ＜8 ohm
- $R_{DS(ON)}$(at V_{GS}=-4.5V) ＜9.9 ohm

General Description

- Trench Power LV MOSFET technology
- Low $R_{DS(ON)}$
- Low Gate Charge

Applications

- Video monitor
- Power management

■ Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter		Symbol	Maximum	Unit
Drain-source Voltage		V_{DS}	-60	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current	T_A=25℃ @ Steady State	I_D	-0.17	A
	T_A=70℃ @ Steady State		-0.14	
Pulsed Drain Current [A]		I_{DM}	1.2	A
Total Power Dissipation @ T_A=25℃		P_D	0.35	W
Thermal Resistance Junction-to-Ambient [B]		$R_{\theta JA}$	357	℃/ W
Junction and Storage Temperature Range		T_J ,T_{STG}	-55～+150	℃

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BSS84	F2	B84.	3000	30000	120000	7“ reel

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=-250μA	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V,V_{GS}=0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-250μA	-0.9	-1.4	-2.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= -10V, I_D=-0.15A		3.3	8	Ω
		V_{GS}= -4.5V, I_D=-0.15A		3.5	9.9	
Diode Forward Voltage	V_{SD}	I_S=-0.17A,V_{GS}=0V			-1.2	V
Maximum Body-Diode Continuous Current	I_S				-0.17	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=-30V,V_{GS}=0V,f=1MHZ		43		pF
Output Capacitance	C_{oss}			2.9		
Reverse Transfer Capacitance	C_{rss}			1.8		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=-10V,V_{DS}=-30V,I_D=-0.15 A		1.77		nC
Gate Source Charge	Q_{gs}			0.57		
Gate Drain Charge	Q_{gd}			0.18		
Reverse Recovery Charge	Q_{rr}	IF=-0.15A, di/dt=100A/μs		13		
Reverse Recovery Time	t_{rr}			23		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=-4.5V, V_{DD}=-30V, I_D=-0.15A, R_{GEN}=2.5Ω		8.6		
Turn-on Rise Time	t_r			20		
Turn-off Delay Time	$t_{D(off)}$			15		
Turn-off Fall Time	t_f			77		

A. Pulse Test: Pulse Width≤10us,Duty cycle ≤2%.
B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

■ Typical Performance Characteristics

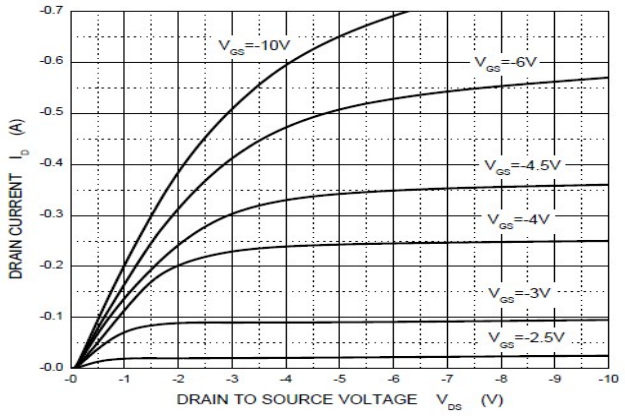


Figure1. Output Characteristics

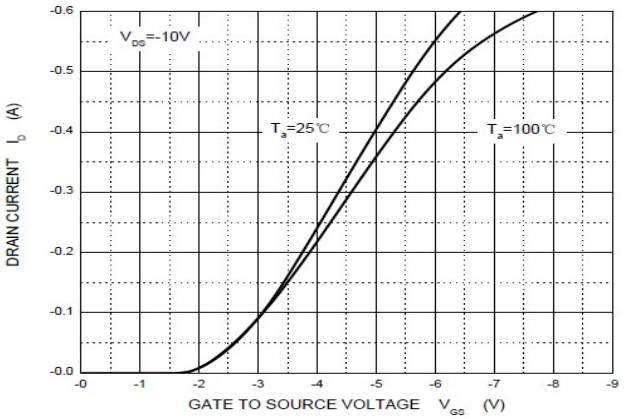


Figure2. Transfer Characteristics

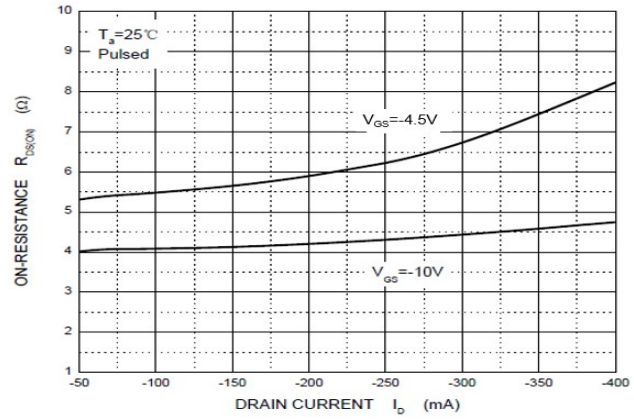


Figure3. Drain-Source on Resistance

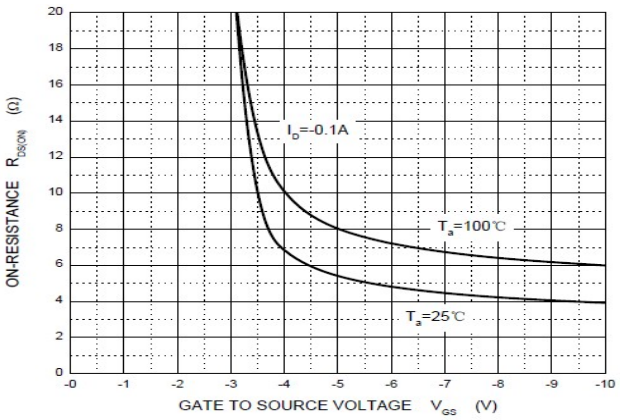


Figure4. Drain-Source on Resistance

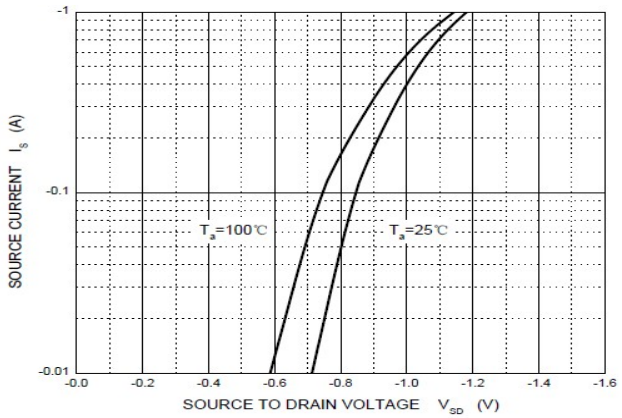


Figure5. Diode Forward Voltage vs. current

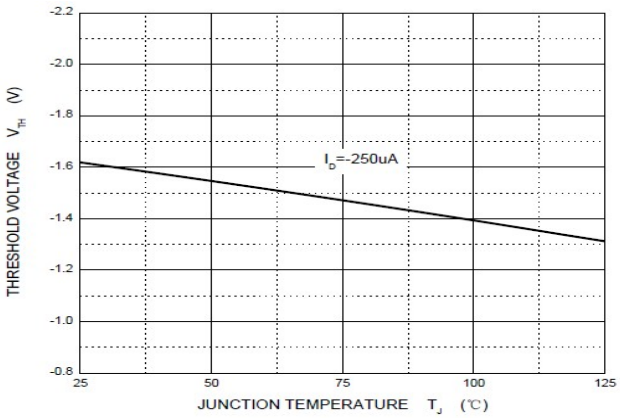
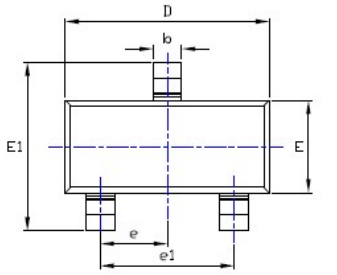
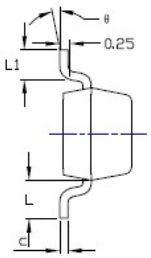


Figure6. Gate Threshold vs. Junction Temperature

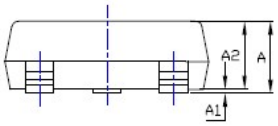
■ SOT-23 Package information



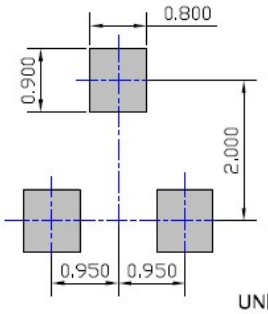
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT：mm

SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS					
	INCHES			Millmeter		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.035	---	0.045	0.900	---	1.150
A1	0.000	---	0.004	0.000	---	0.100
A2	0.035	0.038	0.041	0.900	0.975	1.050
b	0.012	0.016	0.020	0.300	0.400	0.500
c	0.004	---	0.008	0.100	---	0.200
D	0.110	0.114	0.118	2.800	2.900	3.000
E	0.047	0.051	0.055	1.200	1.300	1.400
E1	0.089	0.094	0.100	2.250	2.400	2.550
e	0.037TYP			0.950TYP		
e1	0.071	0.075	0.079	1.800	1.900	2.000
L	0.022REF			0.550REF		
L1	0.012	0.016	0.200	0.300	0.400	0.500
θ	0°	---	8°	0°	---	8°

NOTE:
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2,TOLERANCE 0,1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

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