

P-Channel Enhancement Mode Field Effect Transistor

Product Summary

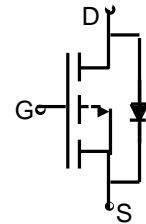
- V_{DS} -60 V
- I_D -0.17 A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <8 ohm
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) <10 ohm

General Description

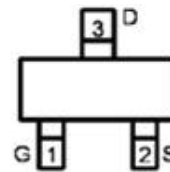
- Trench Power LV MOSFET technology
- Low $R_{DS(ON)}$
- Low Gate Charge

Applications

- Video monitor
- Power management



Schematic diagram



Marking and pin Assignment



SOT23 top view

■ Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Maximum	Unit
Drain-source Voltage	V_{DS}	-60	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current	I_D	$T_A=25^{\circ}C$ @ Steady State	-0.17
		$T_A=70^{\circ}C$ @ Steady State	-0.14
Pulsed Drain Current ^A	I_{DM}	-0.68	A
Total Power Dissipation @ $T_A=25^{\circ}C$	P_D	225	mW
Thermal Resistance Junction-to-Ambient ^B	$R_{\theta JA}$	556	$^{\circ}C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^{\circ}C$

■ Ordering Information (Example)

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

■ Electrical Characteristics (T_J=25°C 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, T _C =25°C			-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			8	Ω
		V _{GS} = -4.5V, I _D =-0.15A			10	
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		30		pF
Output Capacitance	C _{oss}			10		
Reverse Transfer Capacitance	C _{rss}			5		
Switching Parameters						
Turn-on Delay Time	t _{D(on)}	V _{GS} =-4.5V, V _{DD} =-30V, I _D =-0.15A, R _{GEN} =2.5Ω		2.5		ns
Turn-on Rise Time	t _r			1		
Turn-off Delay Time	t _{D(off)}			16		
Turn-off Fall Time	t _f			8		

A. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

■ Typical Performance Characteristics

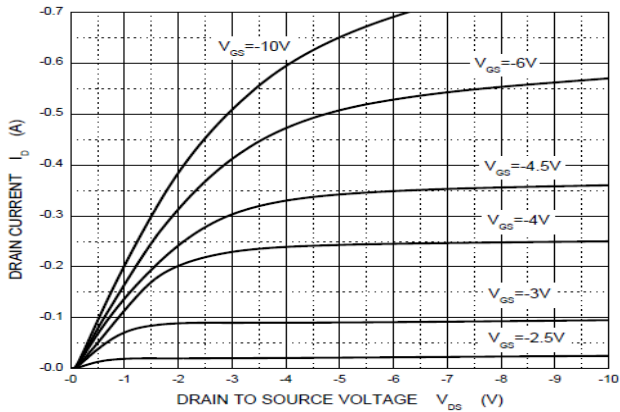


Figure1. Output Characteristics

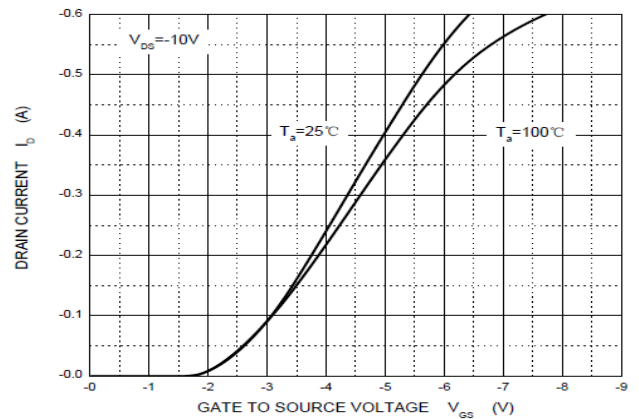


Figure2. Transfer Characteristics

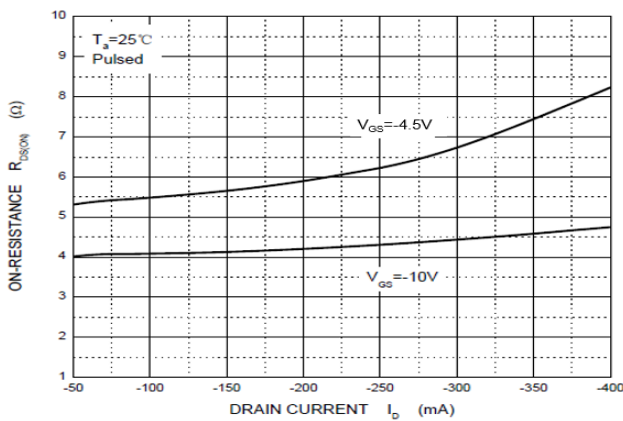


Figure3. Drain-Source on Resistance

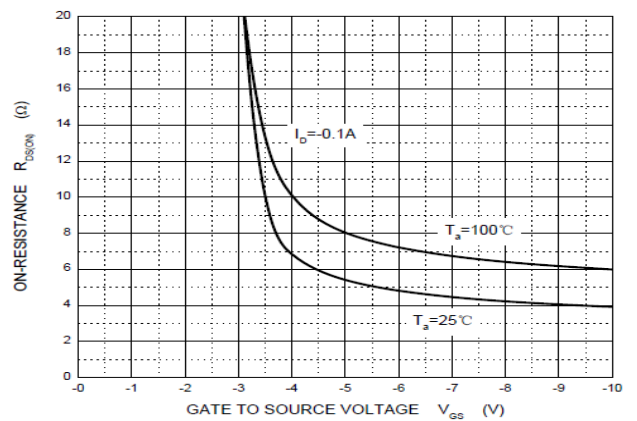


Figure4. Drain-Source on Resistance

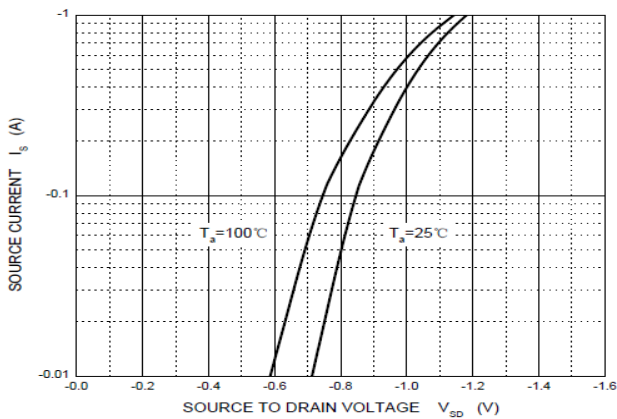


Figure5. Diode Forward Voltage vs. current

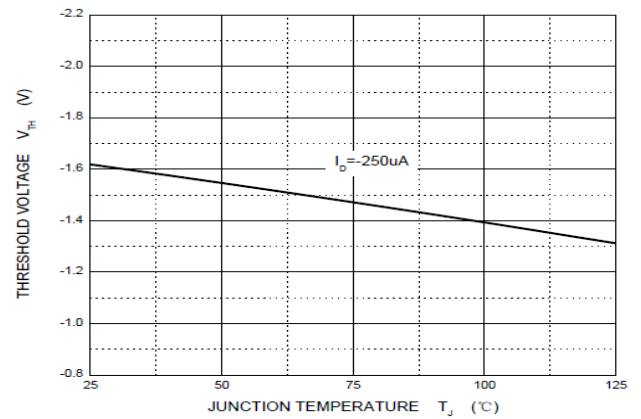
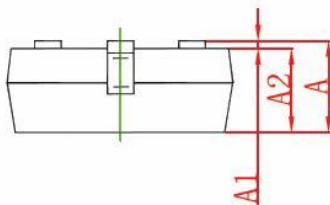
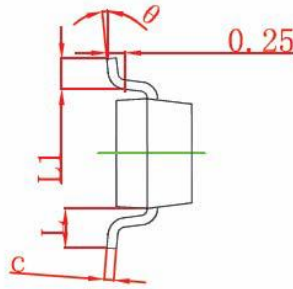
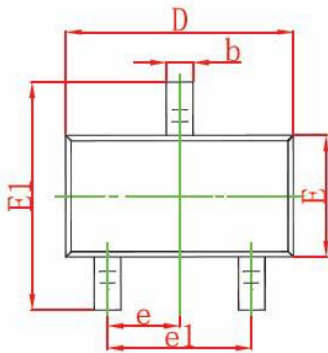
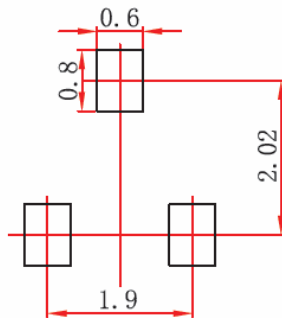


Figure6. Gate Threshold vs. Junction Temperature

■ SOT-23 Package information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

■ SOT-23 Suggested Pad Layout

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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