



BYD Microelectronics Co., Ltd.

BF92301P

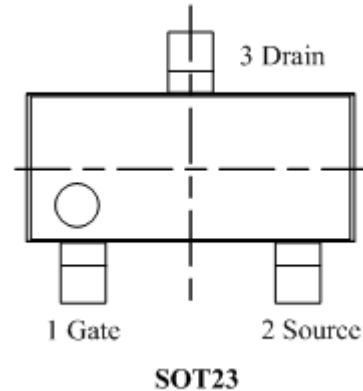
20V P-Channel MOSFET

General Description

The BF92301P uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. This device is suitable for used as a load switch or in PWM applications.

Features

- $V_{DS} (V) = -20V$
- $I_D = -2.8A$
- Low on-state resistance
 $R_{DS(on)} = 80m\Omega$ TYP. ($V_{GS} = -4.5V$)
 $R_{DS(on)} = 100m\Omega$ TYP. ($V_{GS} = -2.5V$)



Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Value	Unit
P-MOSFET			
Drain to Source Voltage	V_{DSS}	-20	V
Gate to Source Voltage	V_{GSS}	± 8	V
Drain Current (DC)	$I_{D(DC)}$	-2.8	A
Drain Current (pulse) ^a	$I_{D(pulse)}$	-8	A
Maximun Power Dissipation ^a	P_D	1.3	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	-55~+150	°C

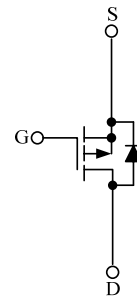
Note: Mounted on FR4 Board of 1"x1".

Caution: These values must not be exceeded under any conditions.

Ordering Information

- Part Number : BF92301P
- Package : SOT-23

EQUIVALENT CIRCUIT



P-Channel MOSFET

Electrical Characteristics (T_A = 25°C)

Symbol	Characteristics	Test Conditions	Min.	Typ.	Max.	Unit
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} =0V			-1	μA
I _{GSS}	Gate Leakage Current	V _{GS} =±8V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate threshold voltage	V _{DS} =V _{GS} , I _D = 250μA	-0.45		-0.95	V
y _{fs}	Forward Transfer Admittance	V _{DS} = -5V, I _D = -4A		6.5		S
R _{DS(on)}	Drain to Source On-state Resistance	V _{GS} = -4.5V, I _D = -1.4A		80	100	mΩ
		V _{GS} = -2.5V, I _D = -1.4A		100	150	mΩ
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = -15V, f=1.0MHz		386.6		pF
C _{oss}	Output Capacitance			62.9		pF
C _{rss}	Reverse Transfer Capacitance					pF
t _{d(on)}	Turn-on Delay Time	V _{DD} = -10V, I _D = -1.4A, V _{GS} = -4.5V, R _G =4.7Ω		20.7		ns
t _r	Rise Time			5.6		ns
t _{d(off)}	Turn-off Delay Time			40.05		ns
t _f	Fall Time			7.4		ns
Q _G	Total Gate Charge	V _{DD} = -10V, I _D = -1.4A, V _{GS} = -4.5V, R _G =10Ω		6.5		nC
Q _{GS}	Gate to Source Charge			1.5		nC
Q _{GD}	Gate to Drain Charge			1.5		nC
V _{SD}	Drain-Source Diode Forward Voltage	I _s =-2.8A, V _{GS} =0V			-1.2	V

Typical characteristics (25°C unless noted)

Figure 1 Output Characteristics

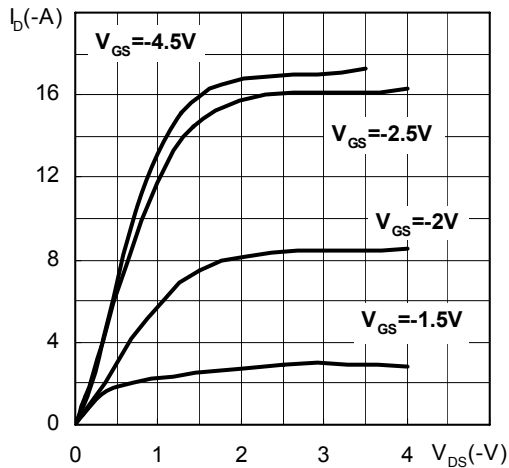


Figure 2 Transfer Characteristics

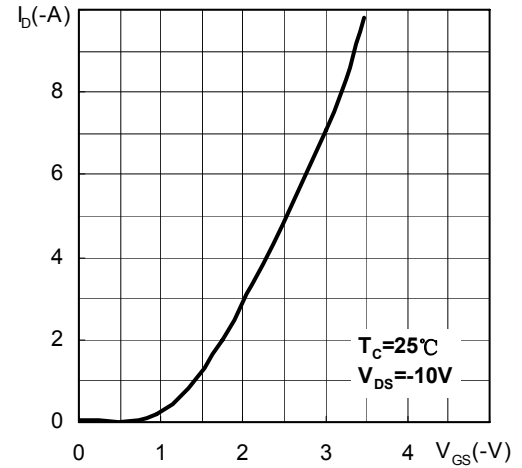


Figure3 On Resistance VS Temperature

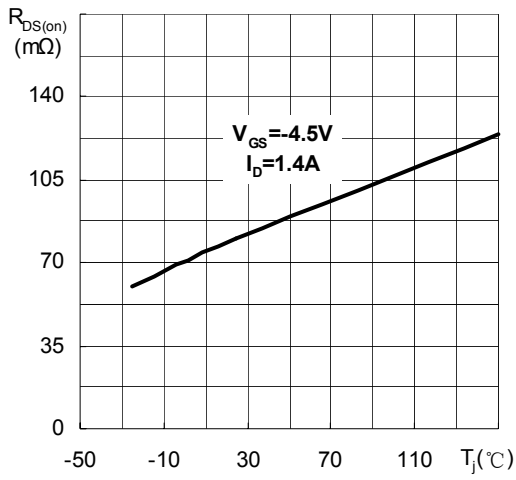


Figure4 Threshold Voltage

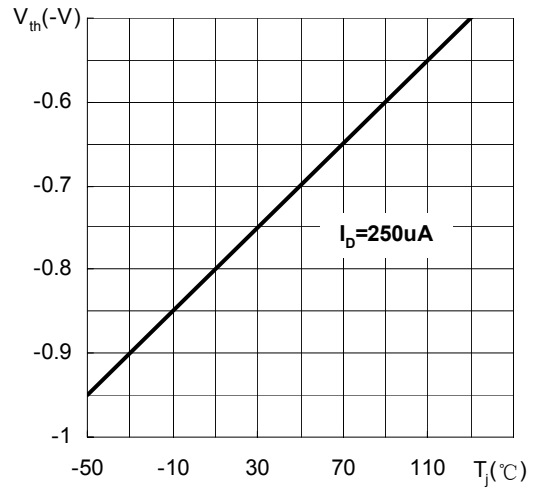


Figure 7 Capacitance

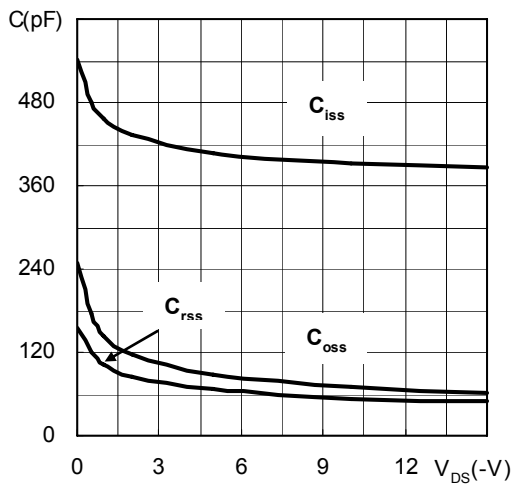


Figure 8 Gate Charge

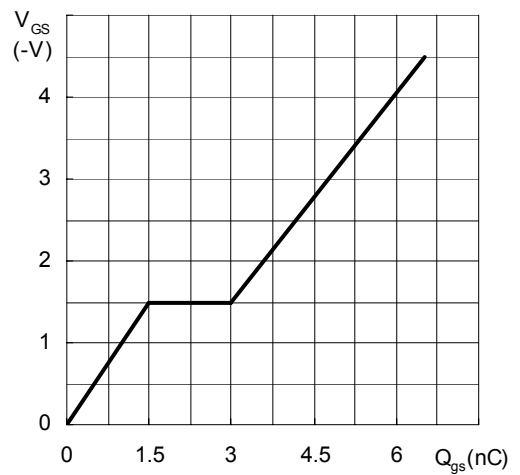
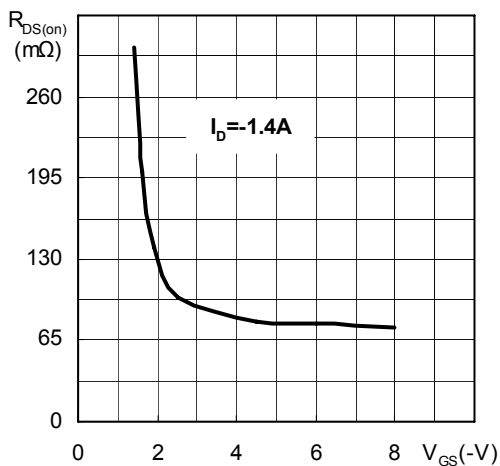
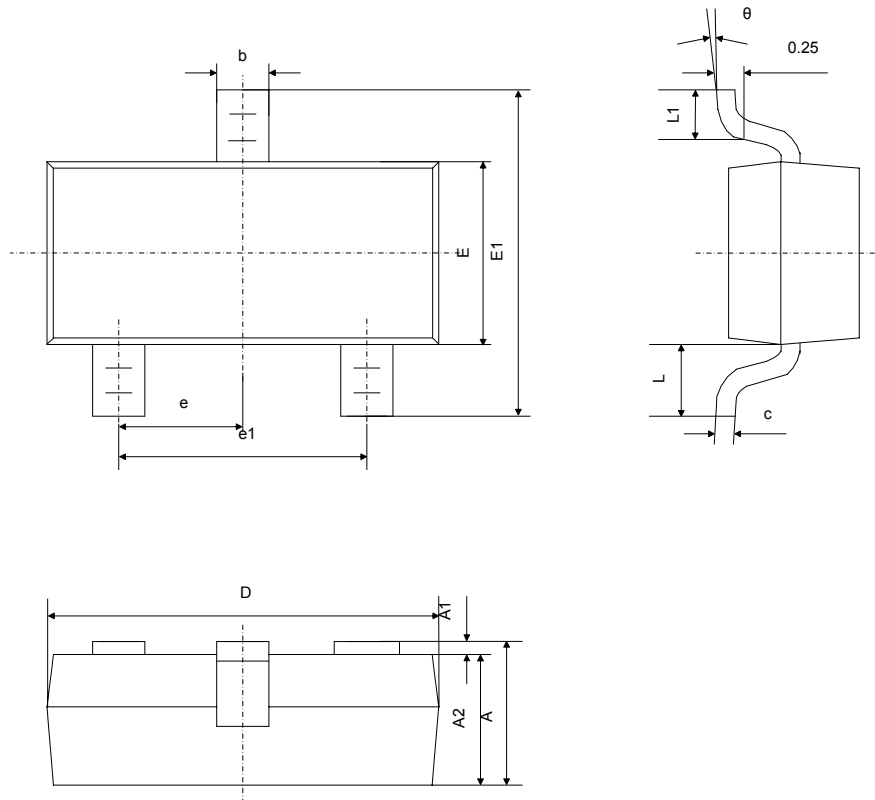


Figure 7 On Resistance VS Gate to Source Voltage



Package Drawing



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.009	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	0.950TYP		0.037TYP	
e1	0.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°

Note:

1. Dimension D does not include mold flash, protrusions or gate burrs. mold flash, protrusions or gate burrs shall not exceed 0.10mm per side.
2. Dimension E1 does not include inter-lead flash or protrusion. Inter-lead flash or protrusion shall not exceed 0.1mm per side.

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