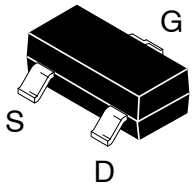
BF821

Switch, N-Chanel

Features

- This Device is Designed for Low Level Analog Switching Applications, Sample and Hold Circuits and Chopper Stabilized Amplifiers.
- Sourced from Process 51.
- This is a Pb−Free and a Halide Free Device



SOT−23

ABSOLUTE MAXIMUM RATINGS (Note 1), (Note 2)

(T_A = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DG}	Drain−Gate Voltage	40	V
V_{GS}	Gate−Source Voltage	−40	V
I_{GF}	Forward Gate Current	50	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	−55 to + 150	°C

THERMAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Characteristic	Max	Unit
P_D	Total Device Dissipation	350	mW
	Derate above 25°C	2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient (Note 3)	357	°C/W

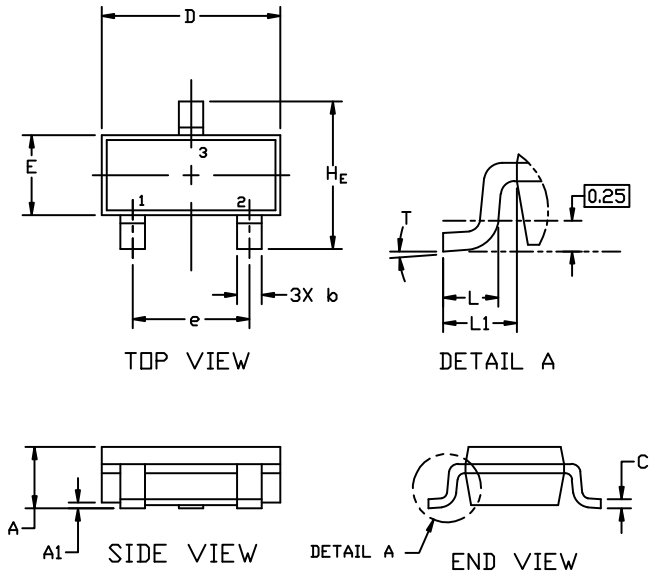
Device mounted on FR−4 PCB 1.6” × 1.6” × 0.06”.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Max	Unit
OFF CHARACTERISTICS					
$V_{(BR)GSS}$	Gate−Source Breakdown Voltage	I_G = 1 μA, V_{DS} = 0	−40	–	V
V_{GS}(off)	Gate−Source Cut−Off Voltage	V_{DS} = 20 V, I_D = 1 nA	−1.0	−5.0	V
I_{DGO}	Drain−Gate Leakage Current	V_{DG} = 20 V, I_S = 0 V_{DG} = 20 V, I_S = 0, T_A = 150°C	– –	−200 −400	pA nA
I_D(off)	Drain Cutoff Leakage Current	V_{DS} = 20 V, V_{GS} = −6 V V_{DS} = 20 V, V_{GS} = −6 V, T_A = 150°C	– –	200 400	pA nA
ON CHARACTERISTICS					
I_{DSS}	Zero−Gate Voltage Drain Current (Note 4)	V_{DS} = 20 V, I_{GS} = 0	8	–	mA
V_{DS}(on)	Drain−Source On Voltage	I_D = 2.5 mA, V_{GS} = 0	–	0.2	V
r_{DS}(on)	Drain−Source On Resistance	I_D = 1 mA, V_{GS} = 0	–	80	Ω
SMALL SIGNAL CHARACTERISTICS					
r_{DS}(on)	Drain−Source On Resistance	V_{DS} = V_{GS} = 0, f = 1 kHz	–	80	Ω
C_{iss}	Input Capacitance	V_{DS} = 20 V, V_{GS} = 0 V, f = 1.0 MHz	–	16	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = −20 V, f = 1.0 MHz	–	5	pF
SWITCHING CHARACTERISTICS					
t_{On}	Turn−On Time	$I_{D(on)}$ = 3.0 mA	–	60	ns
t_{Off}	Turn−Off Time	$V_{GS(off)}$ = 3.0 V	–	80	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

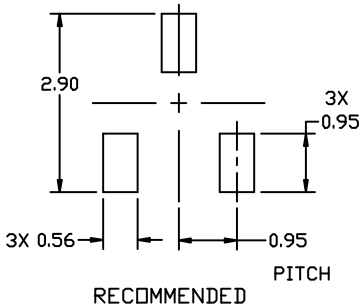
4. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 1%.



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.89	1.00	1.11	0.035	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
c	0.08	0.14	0.20	0.003	0.006	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
H_E	2.10	2.40	2.64	0.083	0.094	0.104
T	0°	---	10°	0°	---	10°



RECOMMENDED
MOUNTING FOOTPRINT

* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.