Features

- *Low $R_{DS(on)}$ @ V_{GS} = -10V*
- *-5V Logic Level Control*
- *P Channel SOT23 Package*
- *ESD Protection*
- *Pb−Free, RoHS Compliant*

V$_{(BR)DSS}$	R$_{DS(ON)}$ Typ	I$_D$ Max
-50V	1.8Ω @ -10V	-0.18A
	2Ω @ -4.5V	

Applications

- High-side Load Switch
- *Switching Circuits*
- *High Speed line Driver*
- General Purpose Interfacing Switch
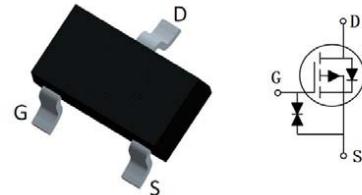
SOT23

Order Information

Product	Package	Marking	Packing
BSS84	SOT23	B84	3000PCS/Reel

Absolute Maximum Ratings

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Symbol	Parameter		Rating	Unit
Common Ratings (T$_A$=25°C Unless Otherwise Noted)				
V$_{GS}$	Gate-Source Voltage		±12	V
V$_{(BR)DSS}$	Drain-Source Breakdown Voltage		-50	V
T$_J$	Maximum Junction Temperature		150	°C
T$_{STG}$	Storage Temperature Range		-50 to 150	°C
Mounted on Large Heat Sink				
I$_{DM}$	Pulse Drain Current Tested①	T$_A$=25°C	-1.2	A
I$_D$	Continuous Drain Current	T$_A$=25°C	-0.18	A
		T$_A$=70°C	-0.14	
P$_D$	Maximum Power Dissipation	T$_A$=25°C	0.3	W
		T$_A$=70°C	0.24	
R$_{\theta JA}$	Thermal Resistance Junction-Ambient		400	°C/W

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T$_J$ = 25°C (unless otherwise stated)						
V$_{(BR)DSS}$	Drain-Source Breakdown Voltage	V$_{GS}$=0V I$_D$=-250µA	-50	--	--	V
I$_{DSS}$	Zero Gate Voltage Drain Current(T$_A$=25℃)	V$_{DS}$=-50V, V$_{GS}$=0V	--	--	-1	µA
	Zero Gate Voltage Drain Current(T$_A$=125℃)	V$_{DS}$=-40V, V$_{GS}$=0V	--	--	-100	uA
I$_{GSS}$	Gate-Body Leakage Current	V$_{GS}$=±12V, V$_{DS}$=0V	--	--	±10	uA
V$_{GS(TH)}$	Gate Threshold Voltage	V$_{DS}$=V$_{GS}$, I$_D$=-250µA	-0.8	-1.3	-2.0	V
R$_{DS(ON)}$	Drain-Source On-State Resistance②	V$_{GS}$=-10V, I$_D$=-0.15A	--	1.8	5	Ω
R$_{DS(ON)}$	Drain-Source On-State Resistance②	V$_{GS}$=-4.5V, I$_D$=-0.15A	--	2	8	Ω
Dynamic Electrical Characteristics @ T$_J$ = 25°C (unless otherwise stated)						
C$_{iss}$	Input Capacitance	V$_{DS}$=-30V, V$_{GS}$=0V, f=1MHz	--	29.4	--	pF
C$_{oss}$	Output Capacitance		--	3	--	pF
C$_{rss}$	Reverse Transfer Capacitance		--	1.2	--	pF
Q$_g$	Total Gate Charge	V$_{DS}$=-30V I$_D$=-0.18A, V$_{GS}$=-4.5V	--	1.1	--	nC
Q$_{gs}$	Gate Source Charge		--	0.1	--	nC
Q$_{gd}$	Gate Drain Charge		--	0.3	--	nC
Switching Characteristics						
t$_{d(on)}$	Turn on Delay Time	V$_{DD}$=-30V, I$_D$=-0.1A, R$_G$=3.3Ω, V$_{GS}$=-10V	--	1.6	--	ns
t$_r$	Turn on Rise Time		--	5.2	--	ns
t$_{d(off)}$	Turn Off Delay Time		-	12	--	ns
t$_f$	Turn Off Fall Time		--	6.1	--	ns
Source Drain Diode Characteristics						
I$_{SD}$	Source drain current(Body Diode)	T$_A$=25℃	--	--	-0.18	A
V$_{SD}$	Forward on voltage②	T$_j$=25℃, I$_{SD}$=-0.18A, V$_{GS}$=0V	--	--	-1.2	V

Notes:

① Pulse width limited by maximum allowable junction temperature

②Pulse test ; Pulse width≤300µs, duty cycle≤2%.

SOT23 Mechanical Data
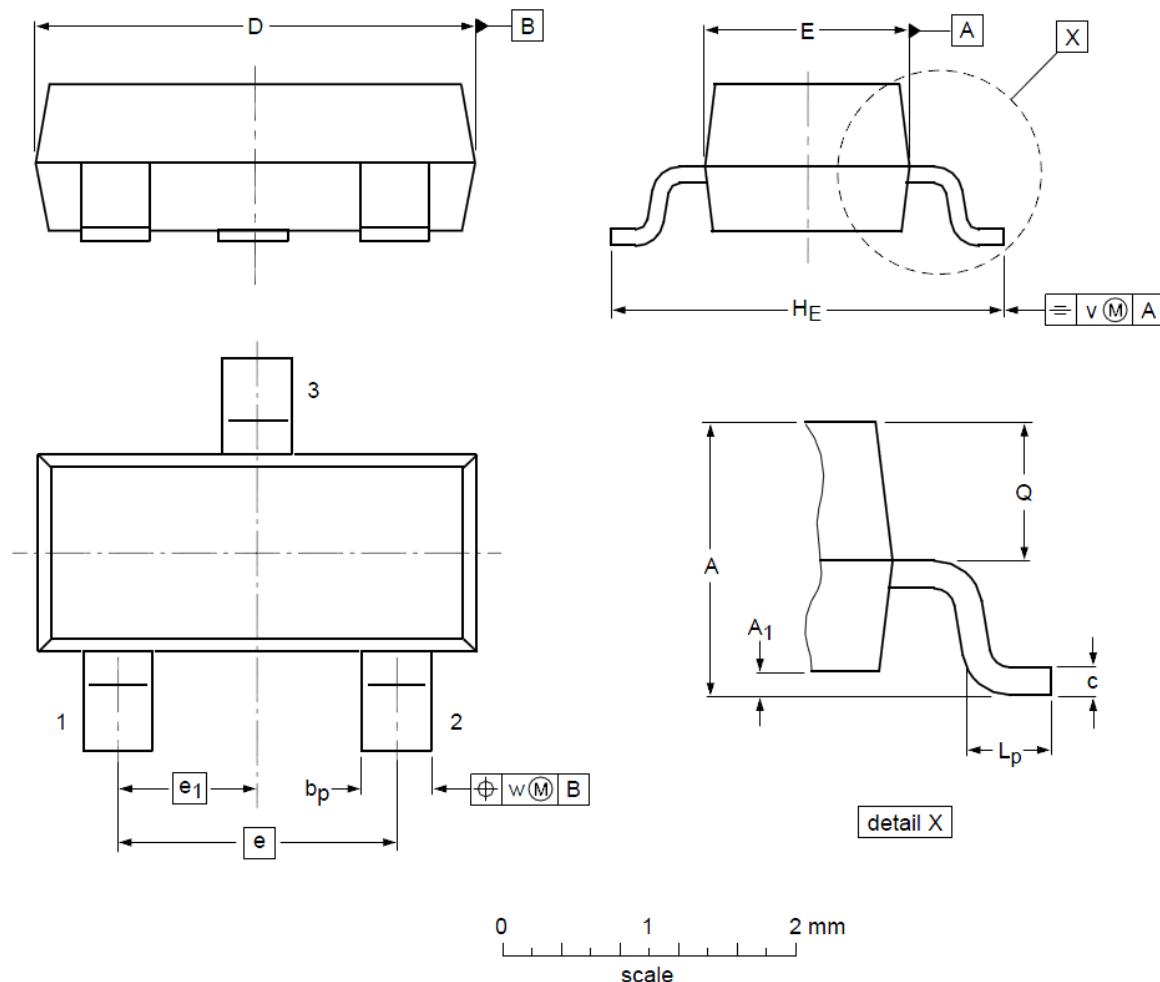
DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	A_1	0.01	0.05	0.10
b_p	0.30	0.42	0.50	c	0.08	0.13	0.15
D	2.80	2.92	3.00	E	1.20	1.33	1.40
e	--	1.90	--	e_1	--	0.95	--
H_E	2.25	2.40	2.55	L_p	0.30	0.42	0.50
Q	0.45	0.49	0.55	v	--	0.20	--
w	--	0.10	--				