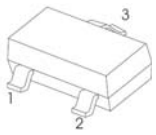
BC3401 **P-Channel 30-V(D-S) MOSFET**

SOT-23 P-Channel Enhancement Mode Field Effect Transistor

SOT-23



1. GATE
2. SOURCE
3. DRAIN

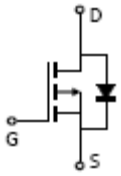
FEATURE

VDS (V) = -30V
ID = -4.2 A (VGS = -10V)

APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter

MARKING: 3401



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Current	I_D	-4.2	A
Pulsed Drain Current	I_{DM}	-30	
Continuous Source-Drain Diode Current	I_S	-0.72	
Maximum Power Dissipation	P_D	1.40	W
Thermal Resistance from Junction to Ambient(t ≤10s)	$R_{\theta JA}$	90	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-55 ~+150	

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Electrical characteristics (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.7	-1	-1.3	
Gate-source leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±12V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =-24V, V_{GS} =0V			-1	μA
Drain-source on-state resistance [a]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4.2A		42	50	mΩ
		V_{GS} =-2.5V, I_D =-1.0A		80	120	
Forward transconductance [a]	g_{fs}	V_{DS} =-5V, I_D =-5A	7	11		S
Dynamic[b]						
Input capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		954		pF
Output capacitance	C_{oss}			115		
Reverse transfer capacitance	C_{rss}			77		
Total gate charge	Q_g	V_{DS} =-15V,V_{GS} =-4.5V,I_D =-4A		9.4		nC
Gate-source charge	Q_{gs}			2		
Gate-drain charge	Q_{gd}			3		
Gate resistance	R_g	V_{DS} =0V,V_{GS} =0V,f =1MHz		6.0		Ω
Turn-on delay time	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, R_L=3.6Ω, R_{GEN}=6Ω		6.3		ns
Rise time	t_r			3.2		
Turn-off delay time	$t_{d(off)}$			38.2		
Fall time	t_f			12		
Drain-source body diode characteristics						
Continuous source-drain diode current	I_S	T_C=25℃			-2.2	A
Body diode voltage	V_{SD}	I_S=-0.7A		-0.75	-1	V

Notes :

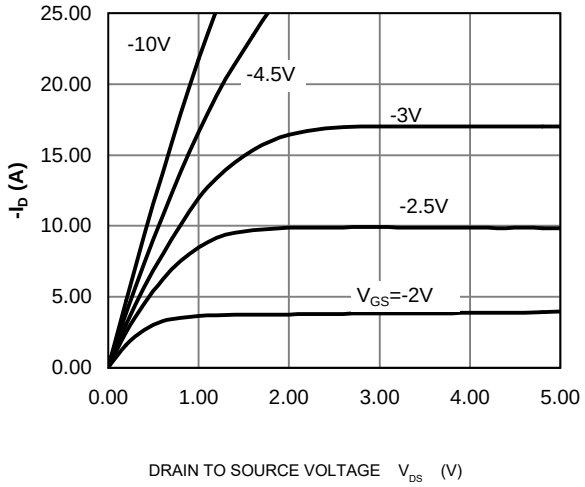
a.Pulse Test : Pulse Width < 300μs, Duty Cycle ≤2%.

b.Guaranteed by design, not subject to production testing.

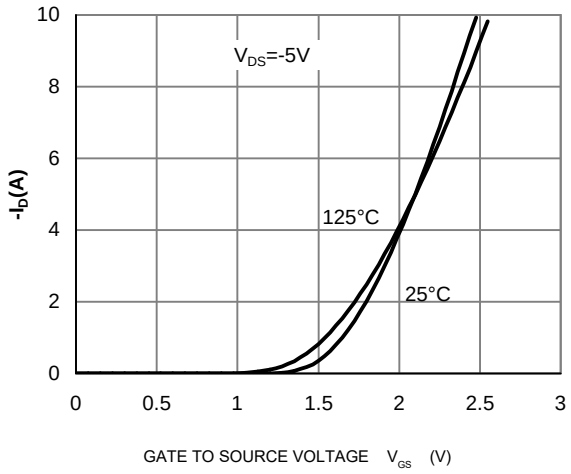
Typical Characteristics

BC3401

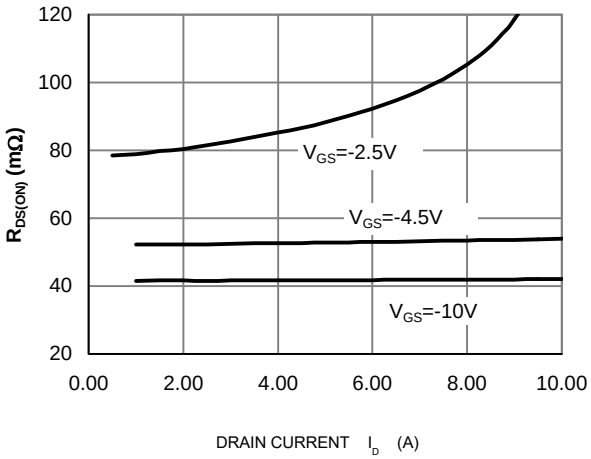
Output Characteristics



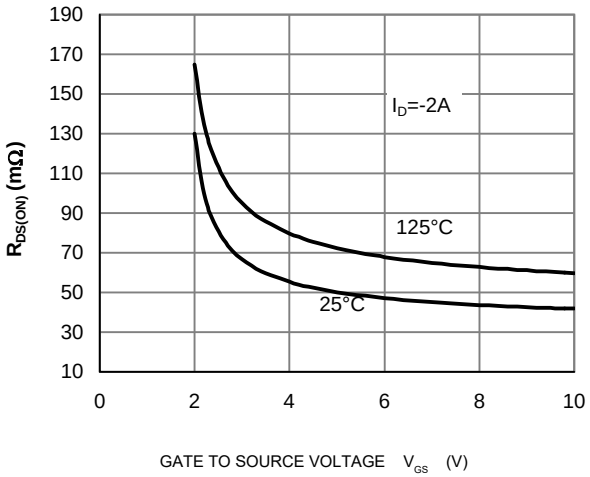
Transfer Characteristics



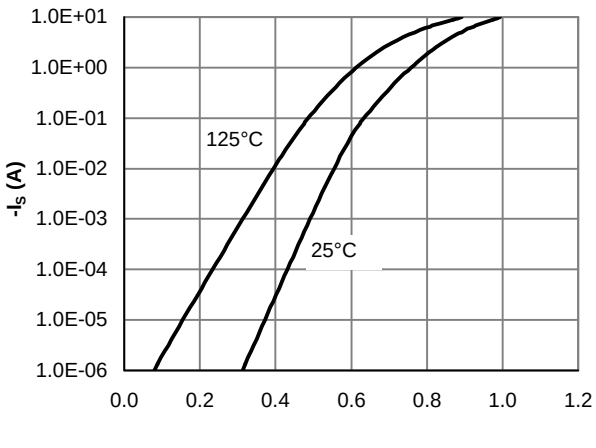
$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$ —— V_{GS}

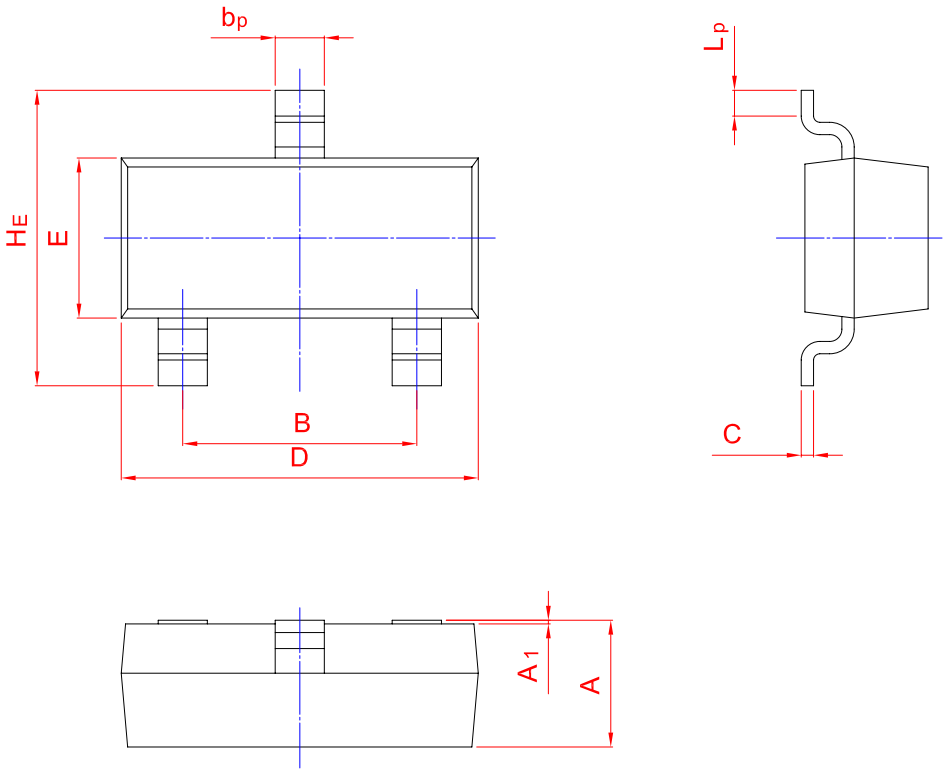


I_S —— V_{SD}



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT-23**



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20