

BC3400

N-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS} = 30V, I_D = 5.8A$
- $R_{DS(on)} < 35m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 40m\Omega @ V_{GS} = 4.5V$
- $R_{DS(on)} < 52m\Omega @ V_{GS} = 2.5V$

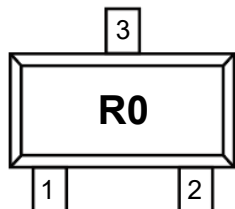
Features

- Advanced Trench Technology
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 1

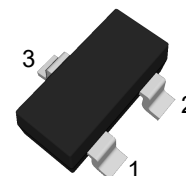
Application

- Load Switch
- PWM Application
- Power Management

Marking Code



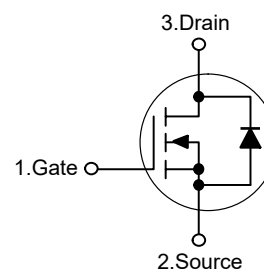
SOT-23



(Top View)

Pin	Description
1	Gate
2	Source
3	Drain

Schematic Diagram



Absolute Maximum Ratings

($T_a = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous	I_D	5.8	A
Drain Current-Pulsed ^{Note1}	I_{DM}	30	A
Maximum Power Dissipation	P_D	1.2	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ C$

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	104	$^\circ C/W$
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Electrical Characteristics

(Ta=25°C unless otherwise specified)

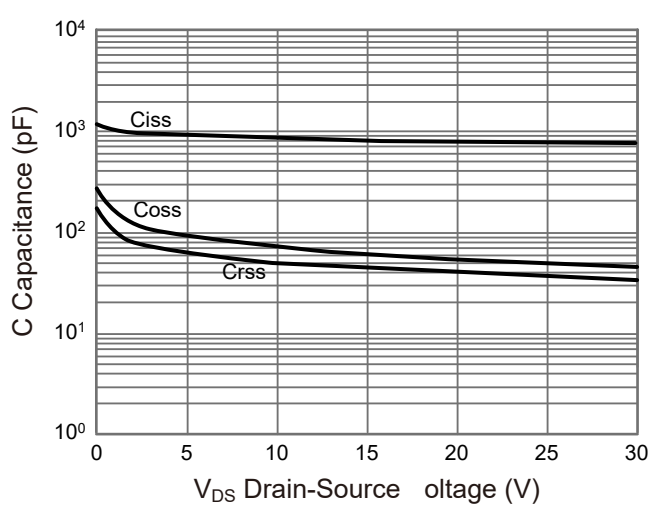
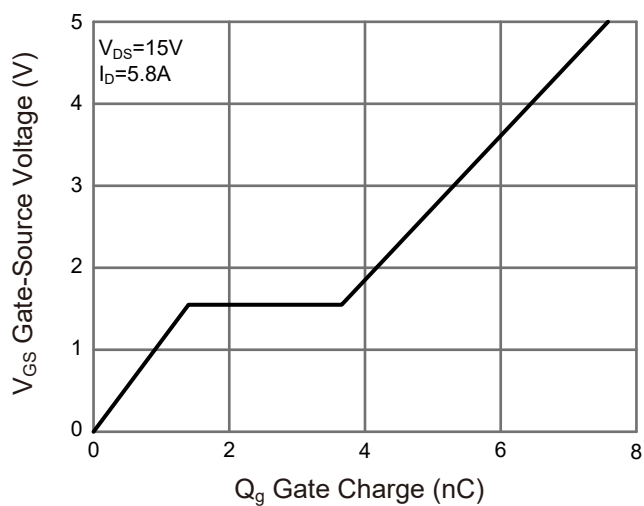
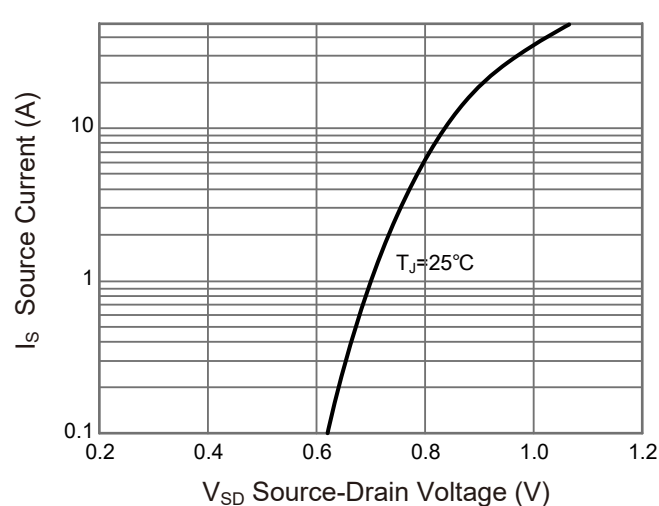
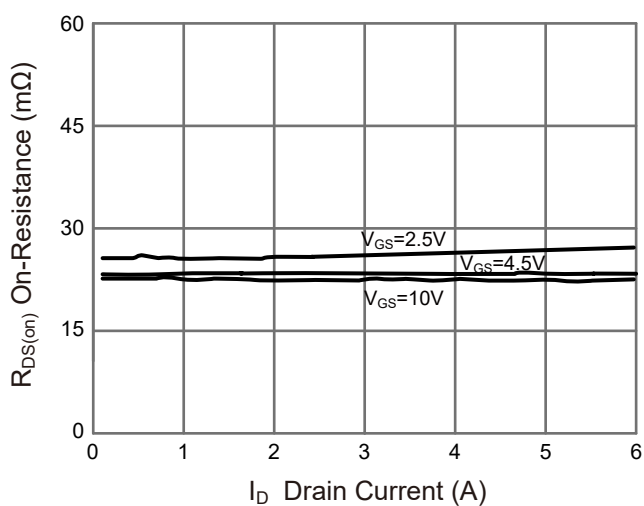
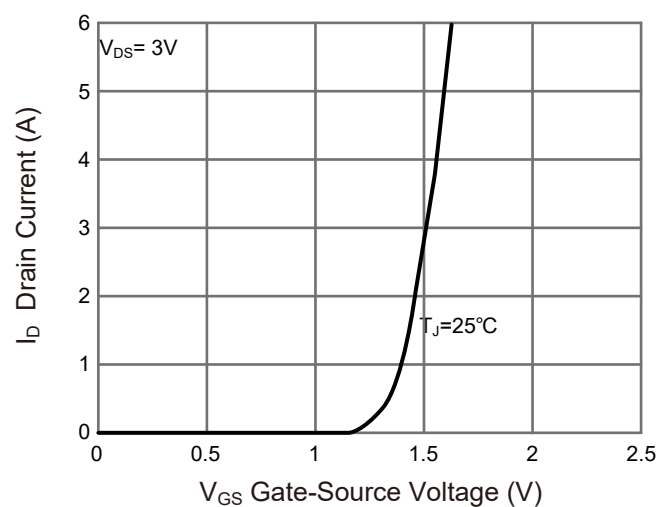
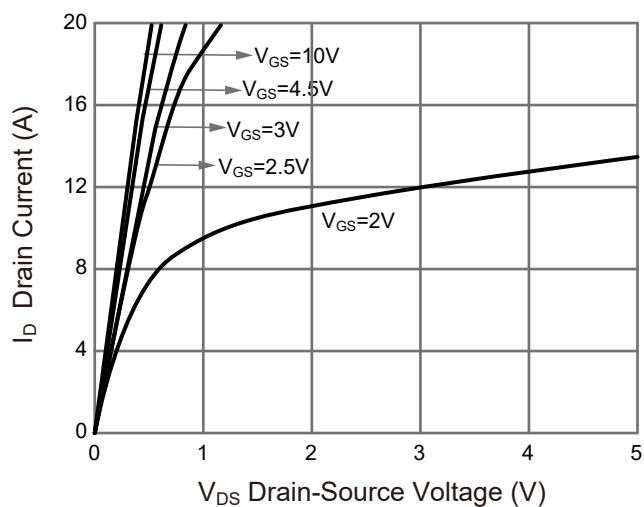
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	30	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage ^{Note3}	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.7	0.85	1.4	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =10V, I _D =5.8A	--	--	35	mΩ
		V _{GS} =4.5V, I _D =5A	--	--	40	mΩ
		V _{GS} =2.5V, I _D =4A	--	--	52	mΩ
Forward Transconductance ^{Note3}	g _{FS}	V _{DS} =5V, I _D =2A	--	9	--	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz	--	815	--	pF
Output Capacitance	C _{oss}		--	61	--	pF
Reverse Transfer Capacitance	C _{rss}		--	47.5	--	pF
Gate Resisitance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	--	4	--	Ω
Total Gate Charge	Q _g	V _{DS} =15V, I _D =5.8A, V _{GS} =0~4.5V	--	8	--	nC
Gate-Source Charge	Q _{gs}		--	1.6	--	nC
Gate-Drain Charge	Q _{gd}		--	2.1	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =15V, I _D =5.8A, V _{GS} =10V, R _{GEN} =3Ω	--	5	--	nS
Turn-on Rise Time	t _r		--	7	--	nS
Turn-off Delay Time	t _{d(off)}		--	40	--	nS
Turn-off Fall Time	t _f		--	6	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	V _{SD}	V _{GS} =0V, I _S =5.8A	--	--	1.2	V
Diode Forward Current ^{Note2}	I _S		--	--	5.8	A

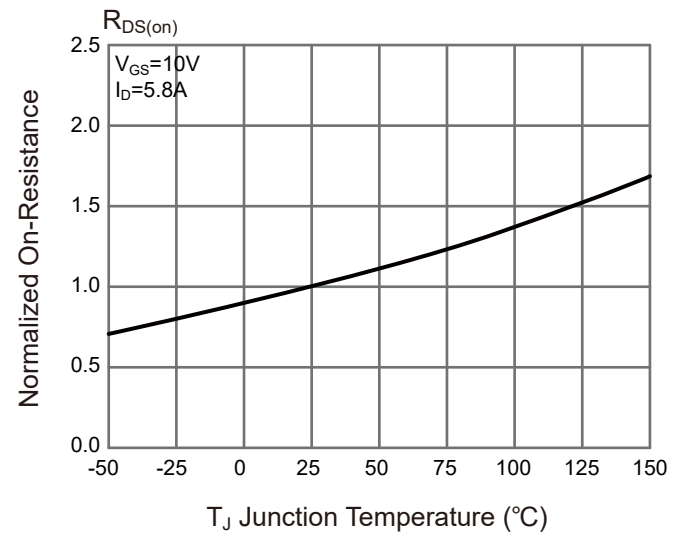
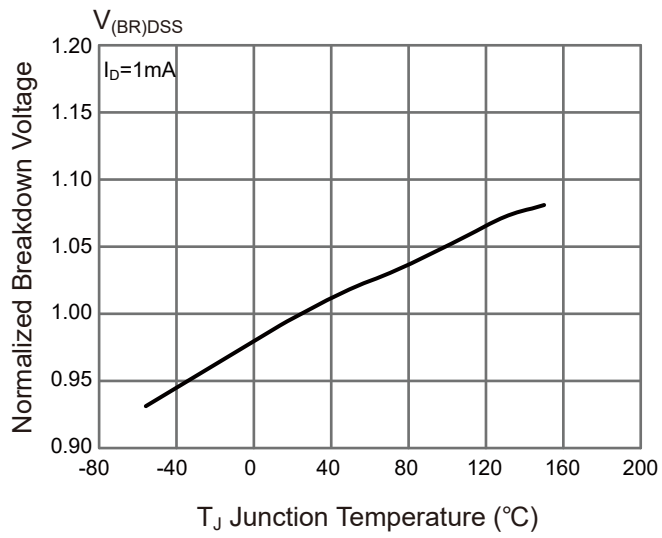
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, $t \leq 10$ sec.

3. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

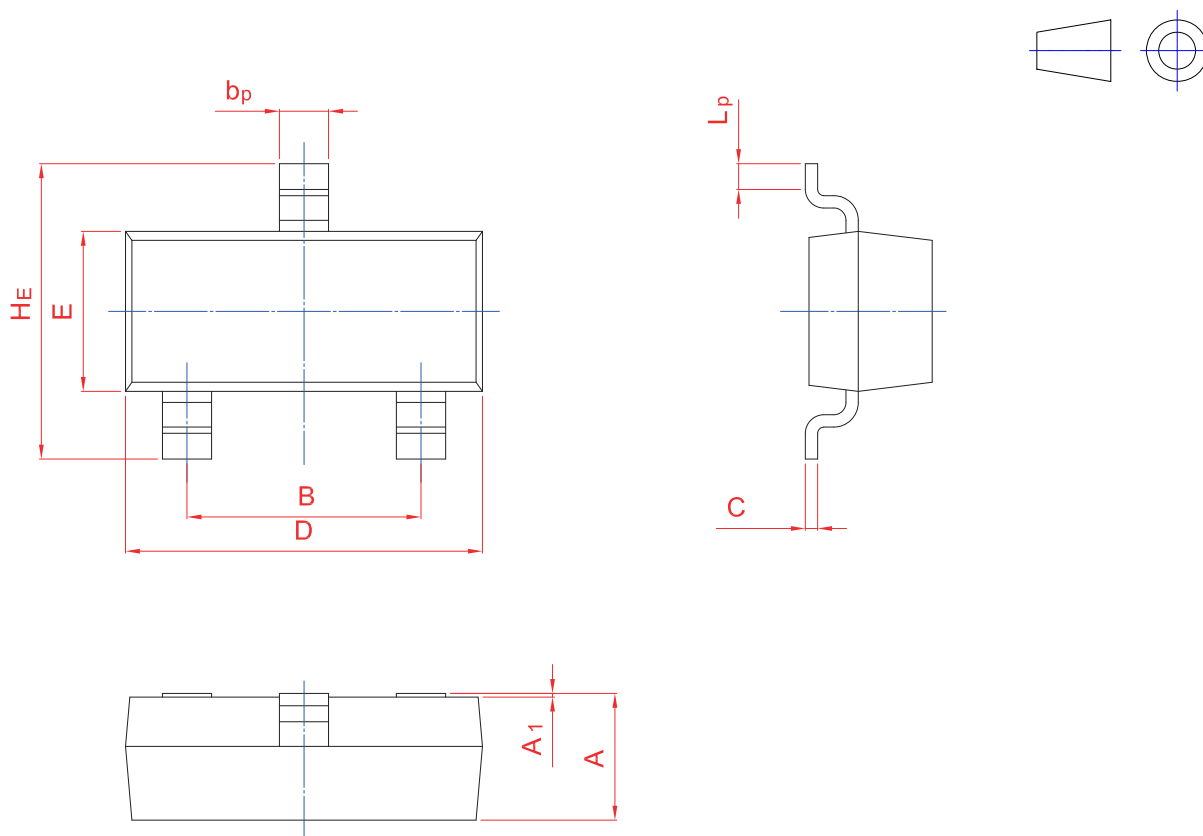
Typical Characteristic Curves





Package Outline

SOT-23



UNIT	A	B	b_p	C	D	E	H_E	A_1	L_p
mm	1.20 0.89	2.04 1.78	0.51 0.30	0.19 0.08	3.10 2.70	1.40 1.20	2.64 2.20	0.100 0.013	0.50 0.20