

SOT-23 Plastic-Encapsulate MOSFETS

BC2303 P-Channel 30-V(D-S) MOSFET

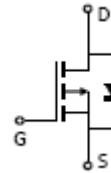
FEATURE

TrenchFET Power MOSFET

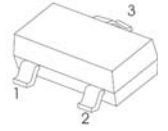
APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter

MARKING: 2303



SOT-23



1. GATE
2. SOURCE
3. DRAIN

Maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	-1.9	A
Continuous Source-Drain Diode Current	I_S	-0.83	
Maximum Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient($t \leq 5s$)	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-50 ~ +150	

Electrical characteristics ($T_a=25^\circ\text{C}$ unless otherwise noted)

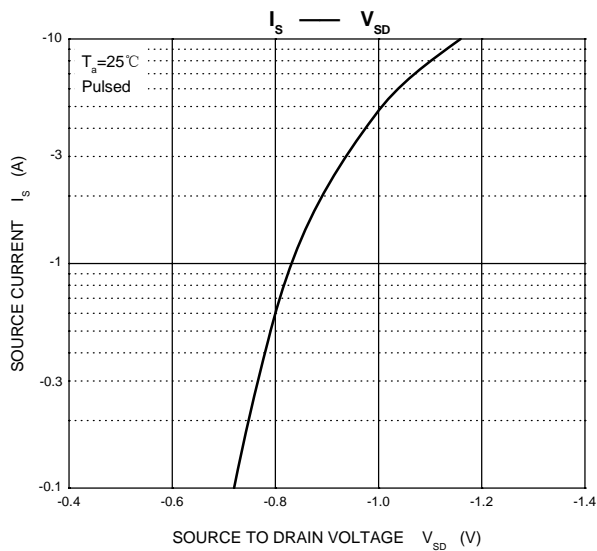
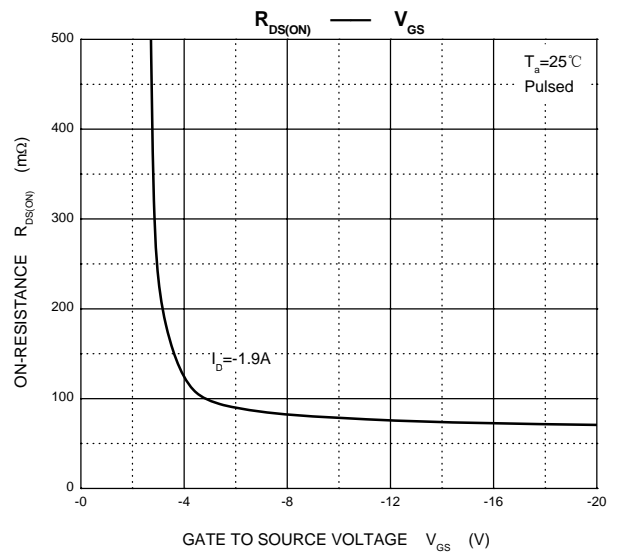
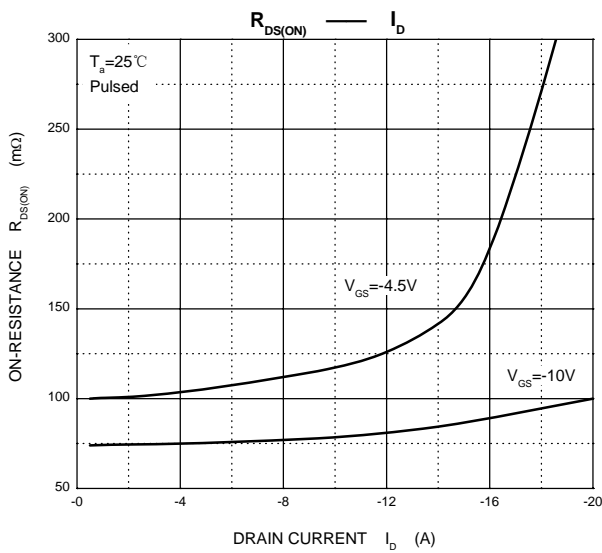
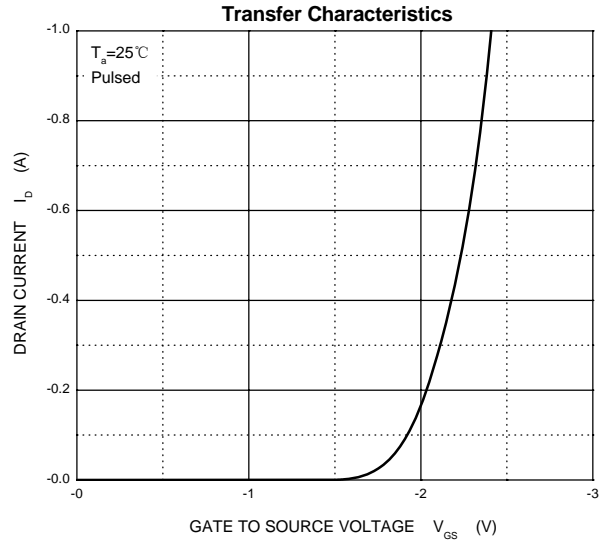
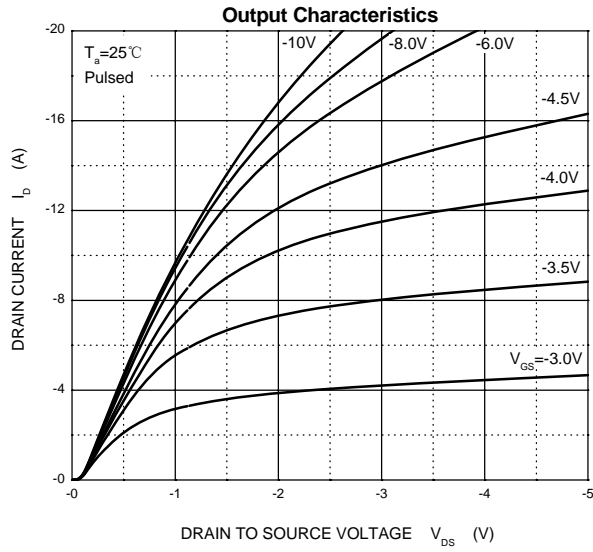
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1		-3	
Gate-Source Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$			-1	μA
Drain-Source On-State Resistance ^a	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -1.9A$		0.158	0.190	Ω
		$V_{GS} = -4.5V, I_D = -1.4A$		0.275	0.330	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -5V, I_D = -1.9A$	1			S
Dynamic^b						
Input Capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		155		pF
Output Capacitance	C_{oss}			35		
Reverse Transfer Capacitance	C_{rss}			25		
Total Gate Charge	Q_g	$V_{DS} = -15V, V_{GS} = -10V, I_D = -1.9A$		4	8	nC
Gate-Source Charge	Q_{gs}	$V_{DS} = -15V, V_{GS} = -4.5V, I_D = -1.9A$		2	4	
Gate-Drain Charge	Q_{gd}			0.6		
Gate Resistance	R_g		$f = 1MHz$	1.7	8.5	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15V,$ $R_L = 10\Omega, I_D = -1.5A,$ $V_{GEN} = -10V, R_g = 1\Omega$		4	8	ns
Rise Time	t_r			11	18	
Turn-Off Delay Time	$t_{d(off)}$			11	18	
Fall Time	t_f			8	16	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15V,$ $R_L = 10\Omega, I_D = -1.5A,$ $V_{GEN} = -4.5V, R_g = 1\Omega$		36	44	
Rise Time	t_r			37	45	
Turn-Off Delay Time	$t_{d(off)}$			12	18	
Fall Time	t_f			9	14	
Drain-source Body diode characteristics						
Continuous Source-Drain Diode Current	I_S	$T_C = 25^\circ C$			-1.75	A
Pulse Diode Forward Current ^a	I_{SM}				-10	
Body Diode Voltage	V_{SD}	$I_S = -1.5A$		-0.8	-1.2	V

Notes :

- a. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

Typical Characteristics

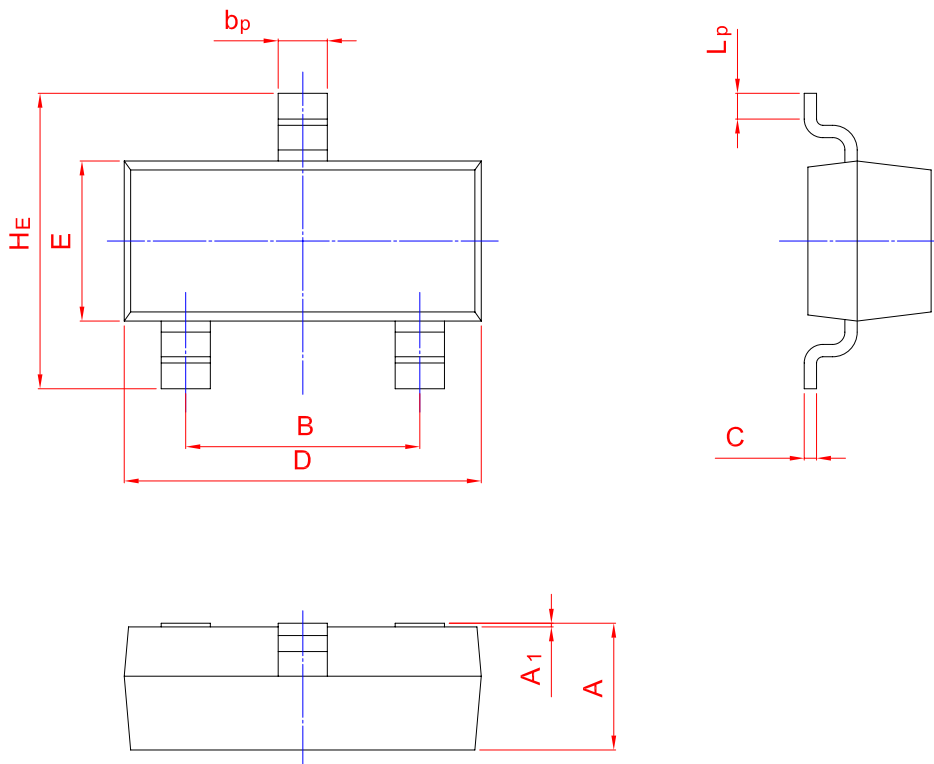
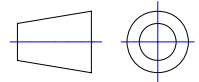
BC2303



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