

SOT-23 Plastic-Encapsulate MOSFETS

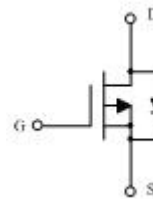
BC2307 P-Channel 30-V(D-S) MOSFET

FEATURE

TrenchFET Power MOSFET

APPLICATIONS

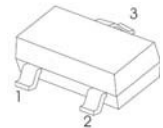
Load Switch for Portable Devices



Equivalent Circuit

SOT-23

- 1. GATE
- 2. SOURCE
- 3. DRAIN



MARKING: 2307

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 ^{a,b}	I_D	-2.7	A
Continuous Source-Drain Current ^{a,b}	I_S	-0.91	
Power Dissipation ^{a,b}	P_D	1.1	W
Thermal Resistance from Junction to Ambient ($t \leq 5s$)	$R_{\theta JA}$	114	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	

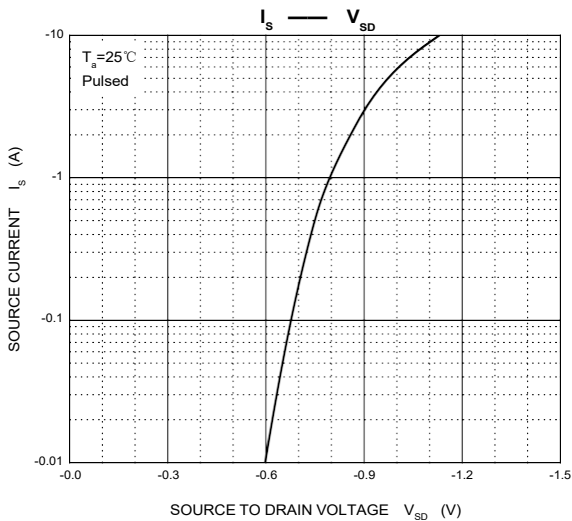
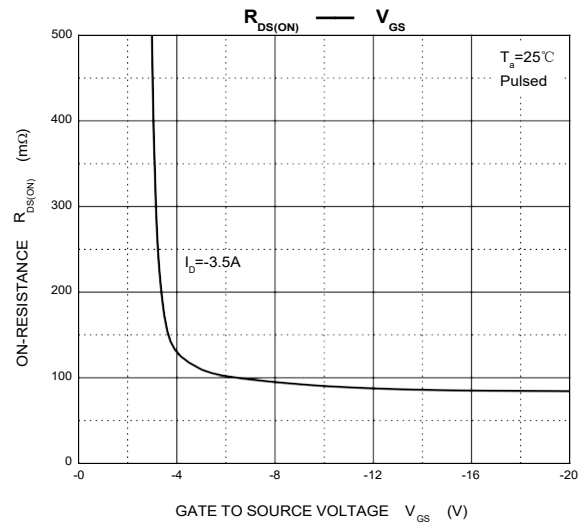
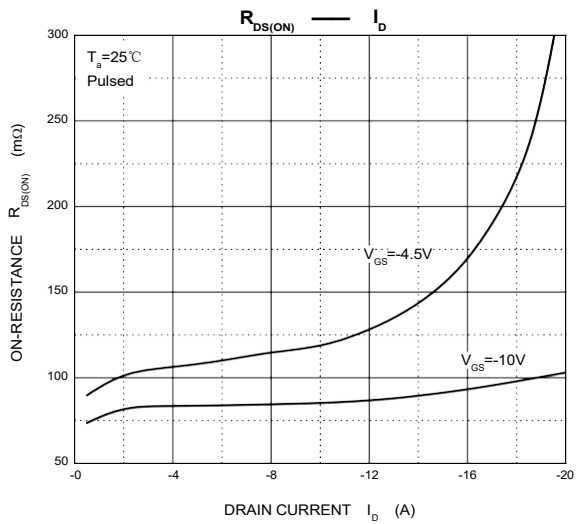
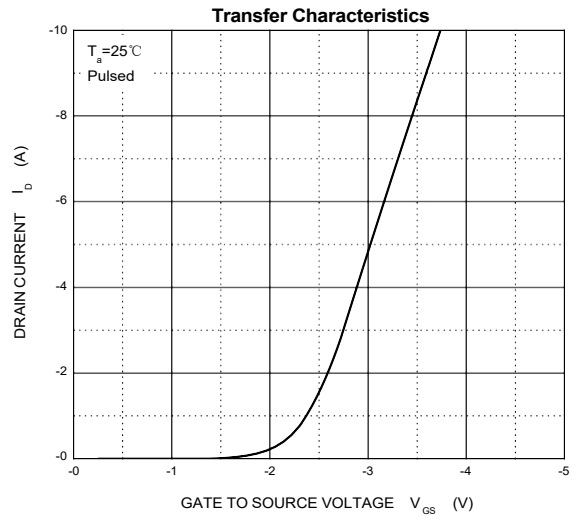
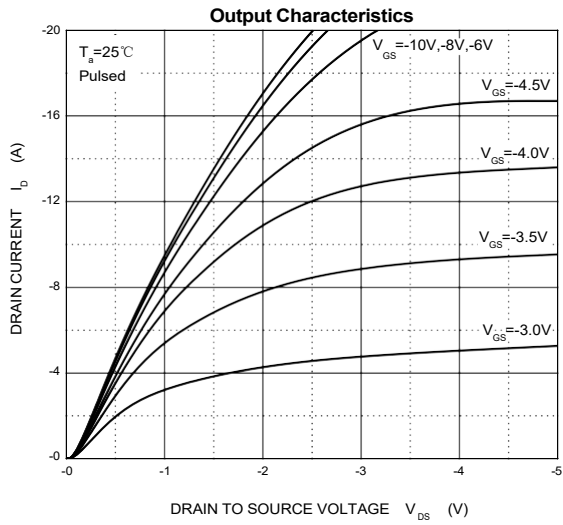
Electrical characteristics ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
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
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55^\circ\text{C}$			-10	
Drain-Source On-State Resistance ^c	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -2.5A$		0.110	0.138	Ω
		$V_{GS} = -10V, I_D = -3.5A$		0.073	0.088	
Forward Transconductance ^c	g_{fs}	$V_{DS} = -10V, I_D = -3.5A$		7		S
Dynamic^d						
Input Capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1\text{MHz}$		340		μF
Output Capacitance	C_{oss}			67		
Reverse Transfer Capacitance	C_{rss}			51		
Total Gate Charge	Q_g	$V_{DS} = -15V, V_{GS} = -4.5V, I_D = -2.5A$		4.1	6.2	nC
Gate-Source Charge	Q_{gs}			1.3		
Gate-Drain Charge	Q_{gd}			1.8		
Gate Resistance	R_g	$f = 1\text{MHz}$		10		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15V, R_L = 15\Omega, I_D = -1A, V_{GEN} = -4.5V, R_g = 1\Omega$		40	60	ns
Rise Time	t_r			40	60	
Turn-Off Delay Time	$t_{d(off)}$			20	40	
Fall Time	t_f			17	30	
Drain-source Body diode characteristics						
Body Diode Voltage	V_{SD}	$I_S = -0.75A, V_{GS} = 0$		-0.8	-1.2	V

Notes:

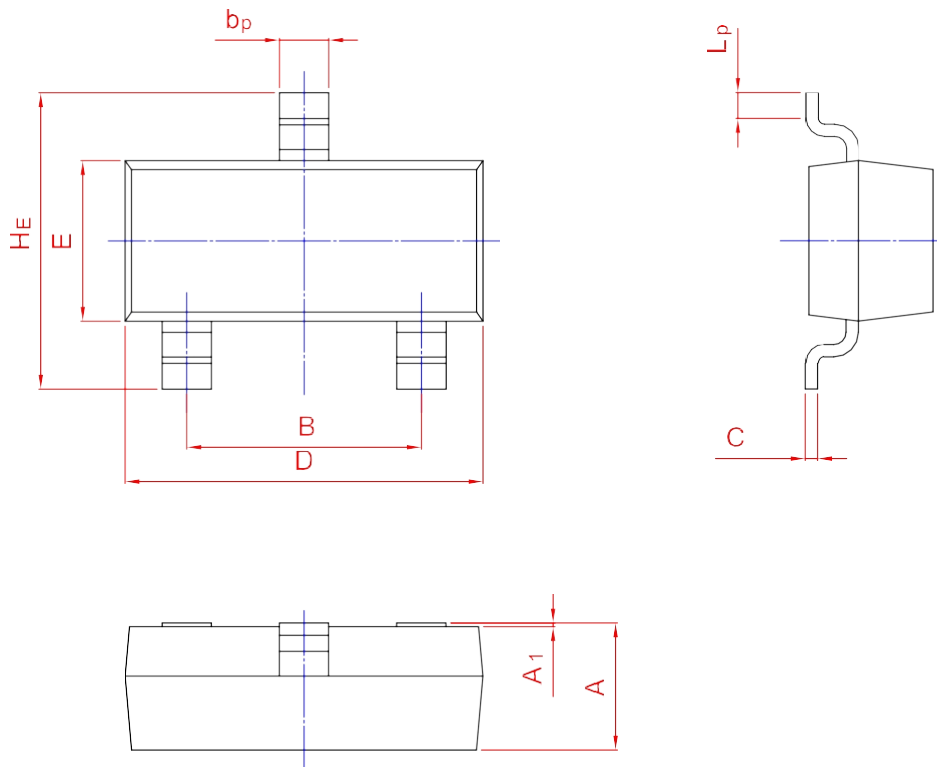
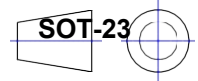
- $t = 5s$.
- Surface mounted on 1" × 1" FR4 board.
- Pulse Test : Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

Typical Characteristics



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads



UNIT

	1.40				3.10	1.65			
	A	B	b_p	C	D	$\frac{E}{1.20}$	H_E	A_1	L_p
mm	0.95	2.04 1.78	0.50 0.35	0.19 0.08	2.70		3.00 2.20	0.100 0.013	0.50 0.20