

BC2101 P-Channel MOSFET

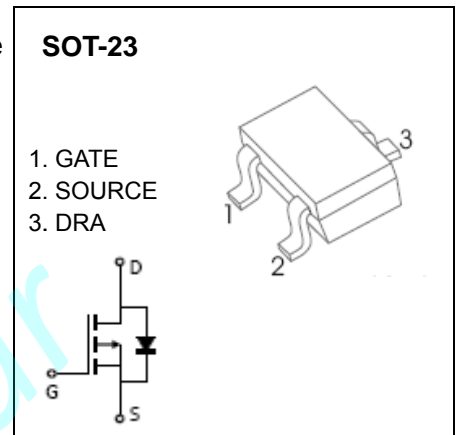
SOT-23 Plastic-Encapsulate MOSFETS

FEATURE

Leading Trench Technology for Low $R_{DS(on)}$ Extending Battery Life

APPLICATIONS

- High Side Load Switch
- Charging Circuit
- Single Cell Battery Applications such as Cell Phones, Digital Cameras ,PDAs, etc



MARKING: TS1

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

Parameter	Symbo	Value	Unit
Drain-Source Voltage	V_{DS}	- 20	V
Gate-Source Voltage	V_{GS}	± 8.0	
Continuous Drain Current	I_D	-1.4	A
Pulsed Drain Current ($t_p=10\mu\text{s}$)	I_{DM}	-3.0	
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	431	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-50 ~+150	

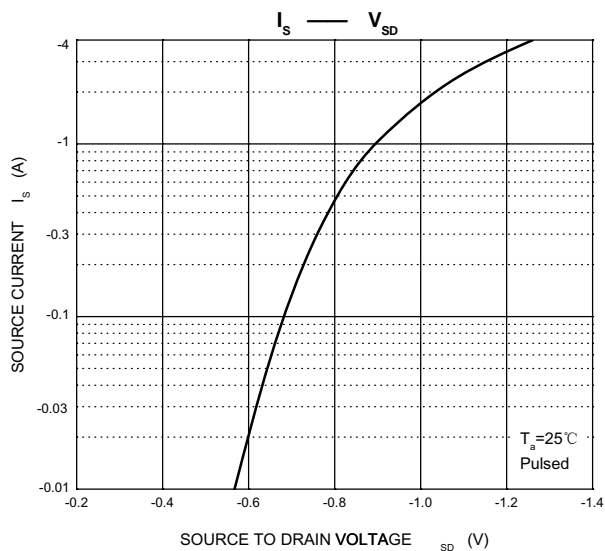
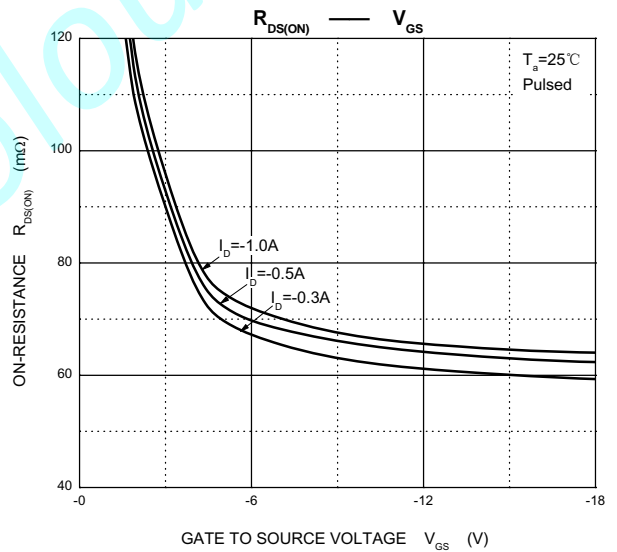
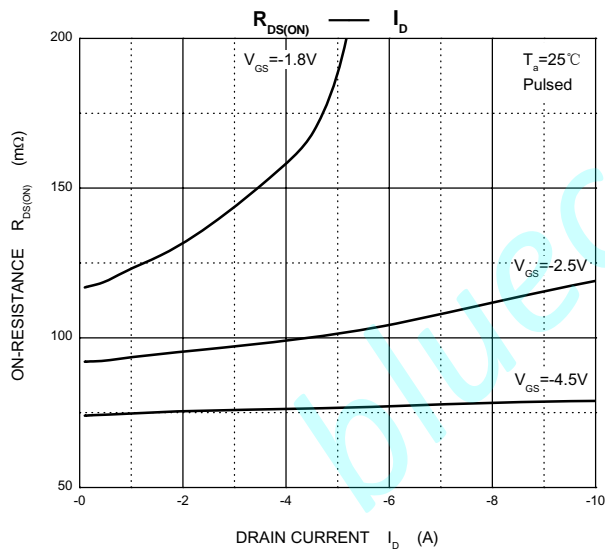
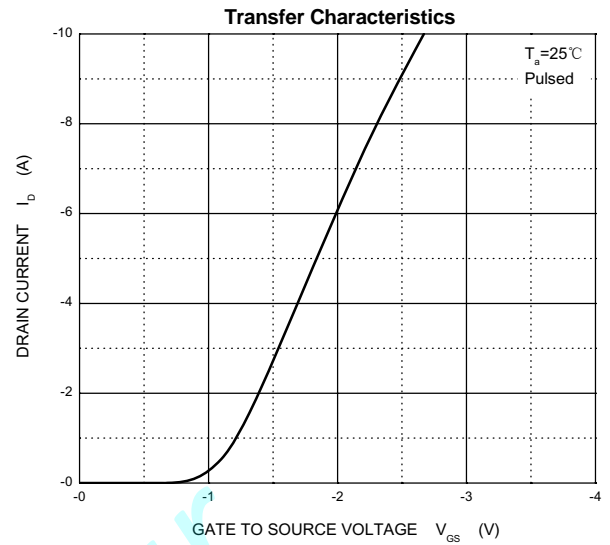
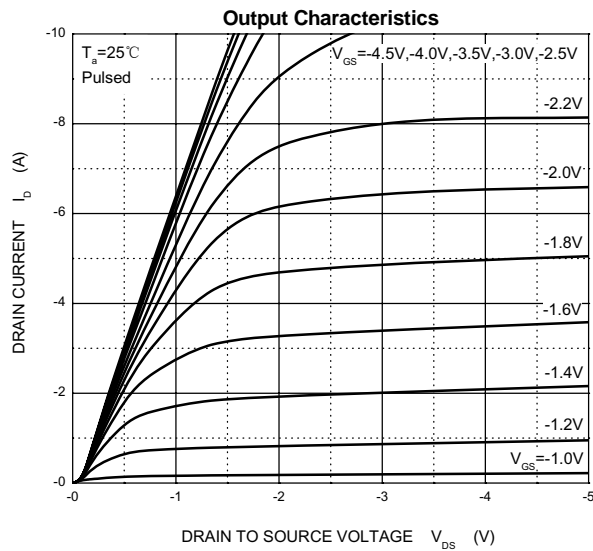
Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
OFF CHARACTERISSTICS						
Drain-Source Breakdown Voltage	V _{DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate-Source Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1.0	μA
OFF CHARACTERISSTICS (note 1)						
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.45	-0.7		V
Drain-Source On-State Resistance	R _{DSON}	V _{GS} = -4.5V, I _D = -1.0A			100	mΩ
		V _{GS} = -2.5V, I _D = -0.5A			140	
		V _{GS} = -1.8V, I _D = -0.3A			210	
CHARGES AND CAPACITANCES (note 3)						
Input Capacitance	C _{ISS}	V _{DS} = -8.0V, V _{GS} = 0V, f = 1MHz		640		pF
Output Capacitance	C _{OSS}			120		
Reverse Transfer Capacitance	C _{RSS}			82		
SWITCHING CHARACTERISSTICS (note 2,3)						
Turn-On Delay Time	t _{d(on)}	V _{GS} = -4.5V, V _{DD} = -4.0V, I _D = -1.0A, R _G = 6.2Ω		6.2		ns
Rise Time	t _r			15		
Turn-Off Delay Time	t _{d(off)}			26		
Fall Time	t _f			18		
Drain-source Body diode characteristics						
Forward Diode Voltage	V _{SD}	V _{GS} = 0V, I _S = -0.3A		-0.62	-1.2	V

Notes :

1. Puls Test : pulse width ≤ 300μs, duty cycle ≤ 2%.
2. Switching characteristics are independent of operating junction temperatures.
3. These parameters have no way to verify.

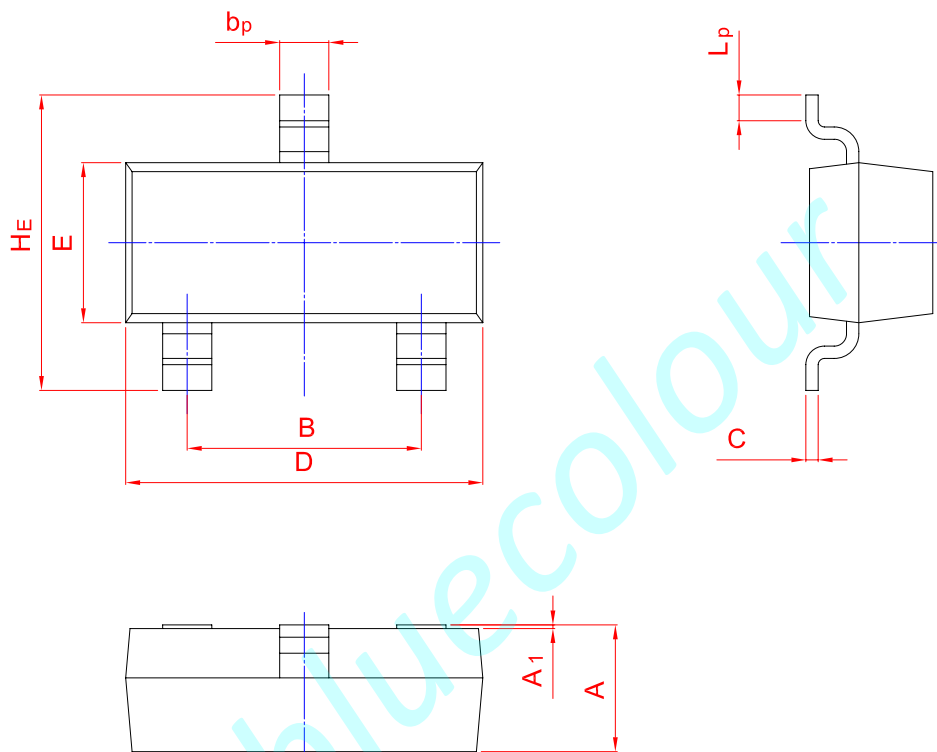
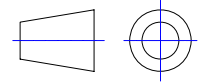
Typical Characteristics



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



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