

BM2301KT

P-Channel MOSFET

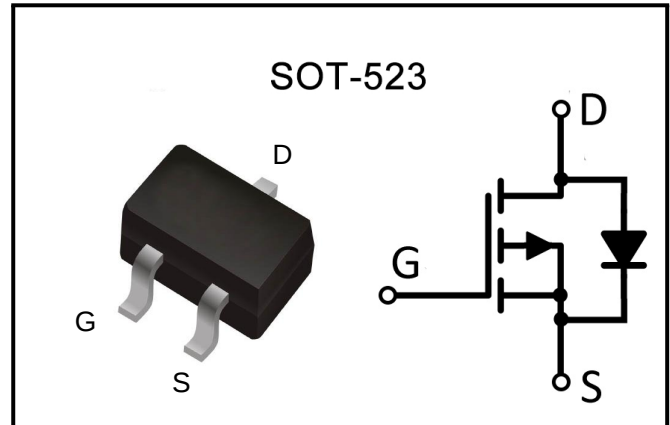
Features

- $V_{DS} = -20V$
- $I_D = -1.5A$
- $R_{DS(ON)} @ V_{GS} = -4.5V, TYP = 95m\Omega$
- $R_{DS(ON)} @ V_{GS} = -2.5V, TYP = 130m\Omega$

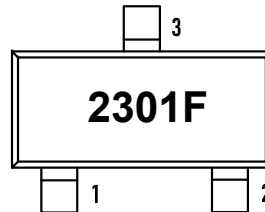
Description

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- SOT-523 for Surface Mount Package.

Package



Marking



Ordering information

Order code	Package	Marking	Base qty	Delivery mode
BM2301KT	SOT-523	2301F	3K	Tape and reel

Absolute Maximum Ratings (@ $T_A = 25^\circ C$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 10	V
I_D	Continuous Drain Current	-1.5	A
I_{DM}	Pulsed Drain Current ⁽¹⁾	-5	A
P_D	Maximum Power Dissipation	250	mW
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55 to + 150	$^\circ C$
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance (PCB mounted)	500	$^\circ C/W$

Notes: (1) Pulse width limited by maximum junction temperature.



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Electrical Characteristics @T_A=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static						
BV _{DS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250uA	-20	—	—	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} = -4.5V, I _D = -1.5A	—	95.0	120.0	mΩ
		V _{GS} = -2.5V, I _D = -1A	—	130.0	170.0	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250uA	-0.4	-0.62	-1	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -18V, V _{GS} = 0V	—	—	-1	uA
I _{GSS}	Gate Body Leakage	V _{GS} = ±10V, V _{DS} = 0V	—	—	±100	nA
Dynamic						
Q _g	Total Gate Charge	V _{DS} = -10V I _D = -1.5A, V _{GS} = -4.5V	—	2.5	—	nC
Q _{gs}	Gate-Source Charge		—	0.6	—	
Q _{gd}	Gate-Drain Charge		—	0.4	—	
t _{d(on)}	Turn-On Delay Time	V _{DD} = -10V, I _D = -1A, V _{GS} = -4.5V, R _G = 3Ω	—	5	—	ns
t _r	Turn-On Rise Time		—	22	—	
t _{d(off)}	Turn-Off Delay Time		—	78	—	
t _f	Turn-Off Fall Time		—	43	—	
C _{iss}	Input Capacitance	V _{DS} = -10V, V _{GS} = 0V, f = 1.0MHZ	—	238	—	pF
C _{oss}	Output Capacitance		—	36	—	
C _{rss}	Reverse Transfer Capacitance		—	27	—	
Source-Drain Diode						
I _S	Max. Diode Forward Current		—	—	-1.5	A
V _{SD}	Diode Forward Voltage	I _S = -1.0A, V _{GS} = 0V,	—	—	-1.2	V

Note(1) :Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%



Typical Performance Characteristics($T_J = 25^\circ\text{C}$, unless otherwise noted)

Figure 1 :Output Characteristics

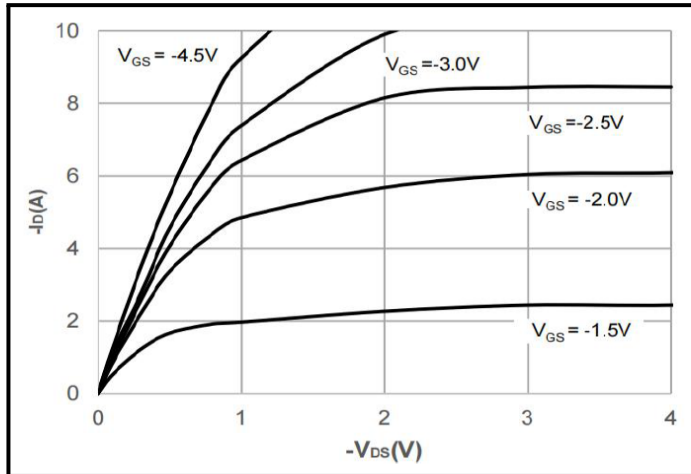


Figure 2 :Transfer Characteristics

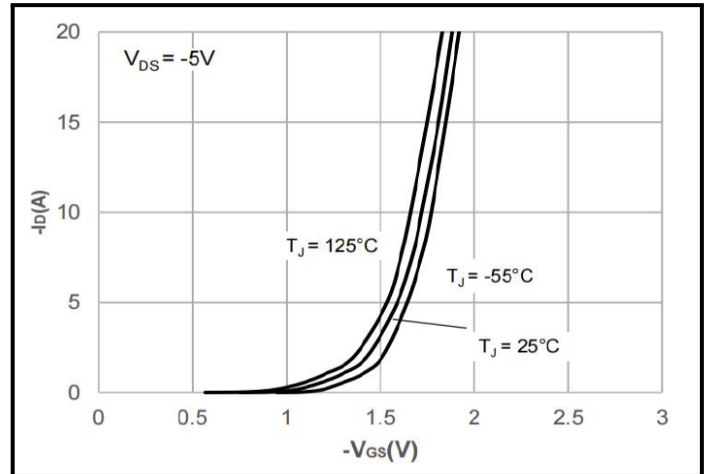


Figure 3 :Drain Current and Gate Voltage

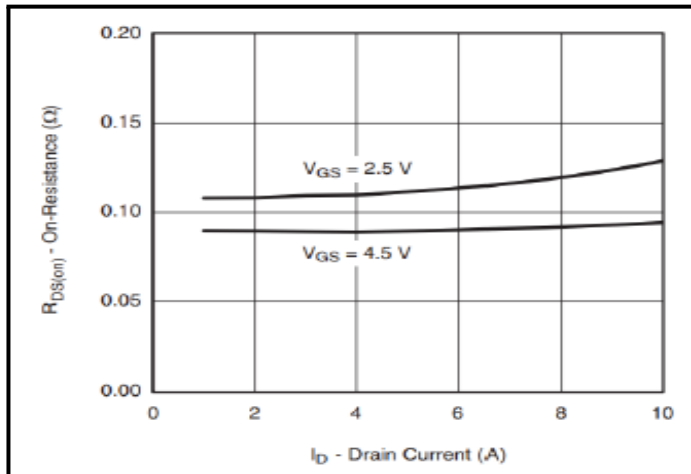


Figure 4 : Capacitance vs V_{ds}

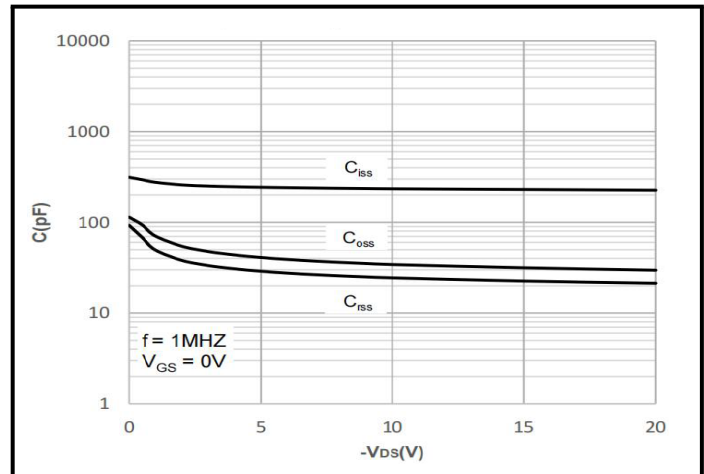


Figure 5 :Gate Charge Characteristics

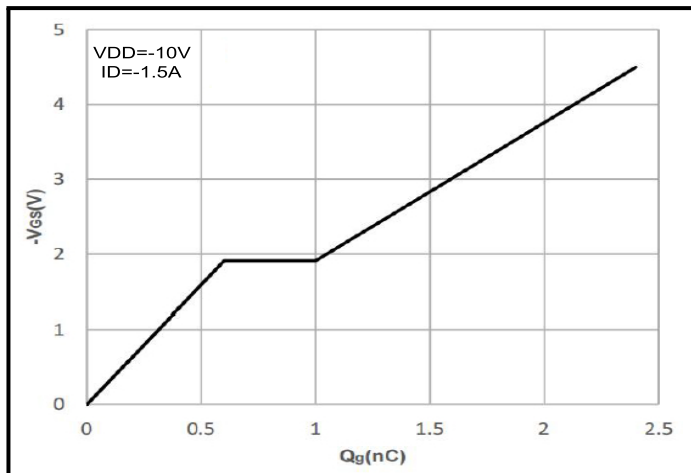
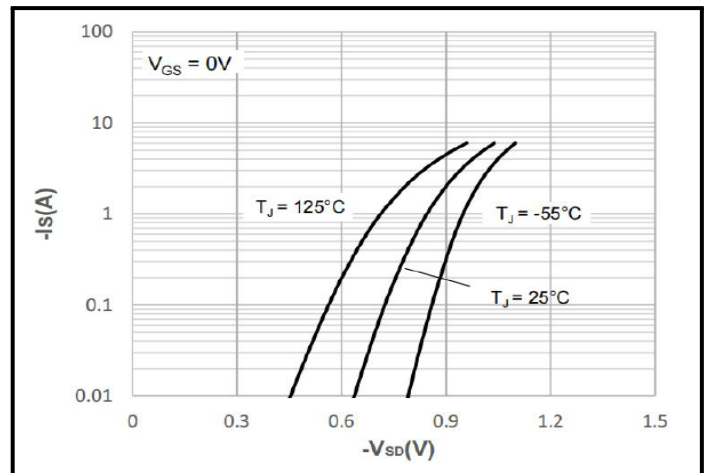


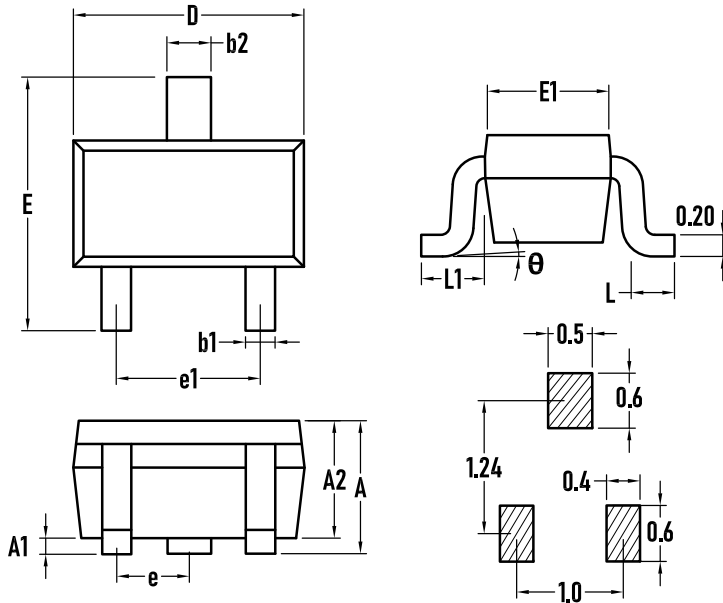
Figure 6 :Source-Drain Diode Forward Voltage



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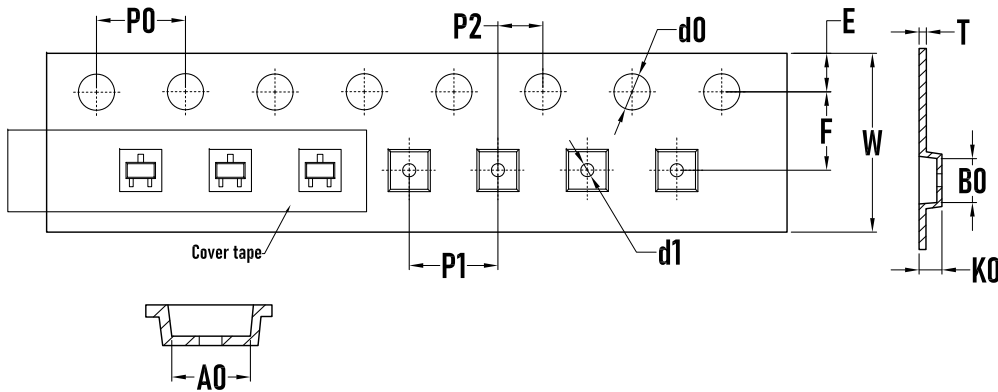
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Outline Drawing – SOT-523



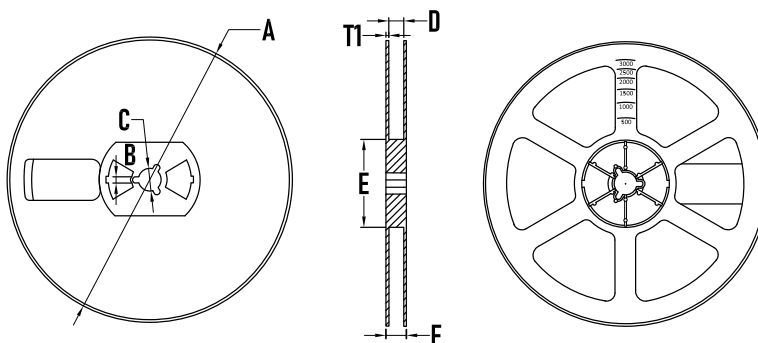
SYMBOL	MILLIMETER		
	MIN	TYP	MAX
A	0.70	0.80	0.90
A1	0.00	0.05	0.10
A2	0.70	0.75	0.80
b1	0.15	0.22	0.29
b2	0.25	0.32	0.39
D	1.50	1.60	1.70
E	1.45	1.60	1.75
E1	0.70	0.80	0.90
e	0.50(TPY.)		
e1	0.90	1.00	1.10
L	0.26	0.36	0.46
L1	0.40(REF)		
θ	0°	4°	8°

Packaging Tape - SOT-523



SYMBOL	MILLIMETER
A0	1.78±0.05
B0	1.78±0.05
d0	1.50±0.10
d1	0.50±0.10
E	1.75±0.10
F	3.50±0.05
K0	0.69±0.05
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
W	8.00±0.20
T	0.20±0.02

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	2.7±0.2
C	13.5±0.2
D	9.6±0.3
E	54.5±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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Specifications are subject to change without notice.

Please refer to <http://www.born-tw.com> for current information.

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