

BM2302KT

N-Channel MOSFET

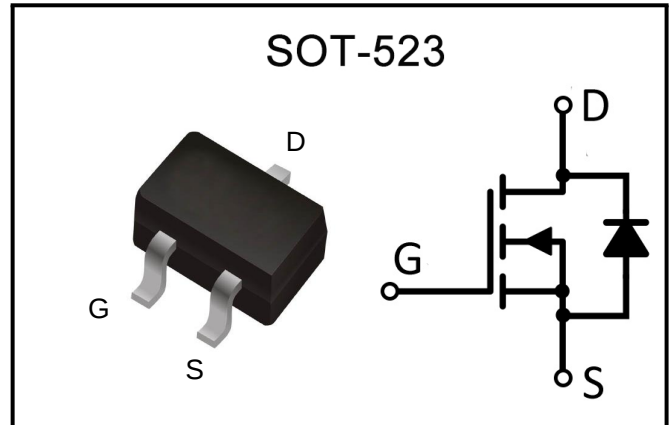
Features

- $V_{DS}=20V$
- $I_D=2.5A$
- $R_{DS(ON)}@V_{GS}=4.5V$, TYP=39 Ω
- $R_{DS(ON)}@V_{GS}=2.5V$, TYP=50m Ω

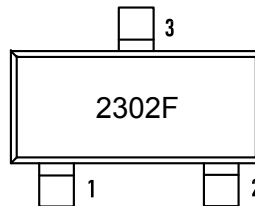
Description

- 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
BM2302KT	SOT-523	2302F	3K	Tape and reel

Absolute Maximum Ratings (@T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Current	2.5	A
I_{DM}	Pulsed Drain Current ⁽¹⁾	10	A
P_D	Maximum Power Dissipation	0.5	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55 to + 150	°C
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance (PCB mounted) ⁽²⁾	250	°C/W

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

(2)Surface Mounted on FR4 Board, t≤5 sec.



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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 ⁽¹⁾	V _{GS} = 4.5V, I _D = 2A	–	39.0	55.0	mΩ
		V _{GS} = 2.5V, I _D = 1A	–	50.0	80.0	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	0.5	0.7	1.0	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 20V, V _{GS} = 0V	–	–	1	uA
I _{GSS}	Gate Body Leakage	V _{GS} = ±12V, V _{DS} = 0V	–	–	±100	nA
Dynamic						
Q _g	Total Gate Charge	V _{DS} = 10V I _D = 2A, V _{GS} = 4.5V	–	4.0	–	nC
Q _{gs}	Gate-Source Charge		–	0.65	–	
Q _{gd}	Gate-Drain Charge		–	1.6	–	
t _{d(on)}	Turn-On Delay Time	V _{DD} = 10V, R _L = 5.5Ω, I _D = 2A, V _{GEN} = 4.5V, R _G = 6Ω	–	12	–	ns
t _r	Turn-On Rise Time		–	36	–	
t _{d(off)}	Turn-Off Delay Time		–	34	–	
t _f	Turn-Off Fall Time		–	10	–	
C _{iss}	Input Capacitance	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHZ	–	340	–	pF
C _{oss}	Output Capacitance		–	115	–	
C _{rss}	Reverse Transfer Capacitance		–	33	–	
Source-Drain Diode						
I _S	Max. Diode Forward Current		–	–	1.6	A
V _{SD}	Diode Forward Voltage	I _S = 1.0A, V _{GS} = 0V,	–	–	1.2	V

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



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

Figure 1 :Power Dissipation

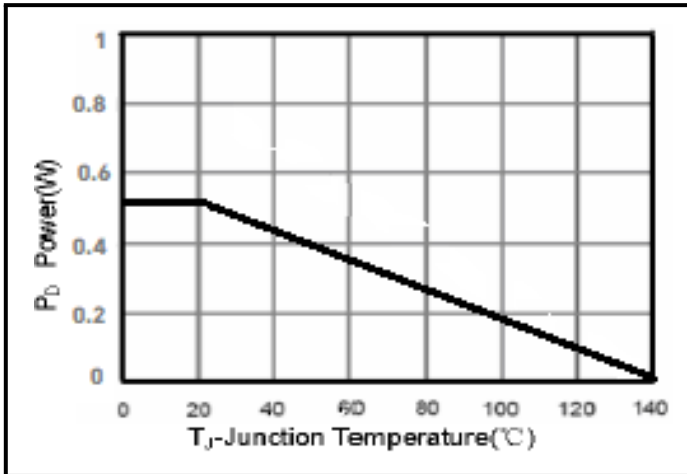


Figure 2 :Drain Current

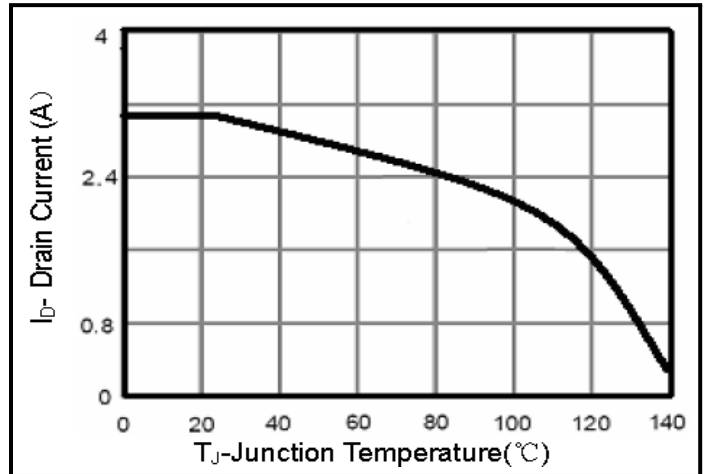


Figure 3 :Output Characteristics

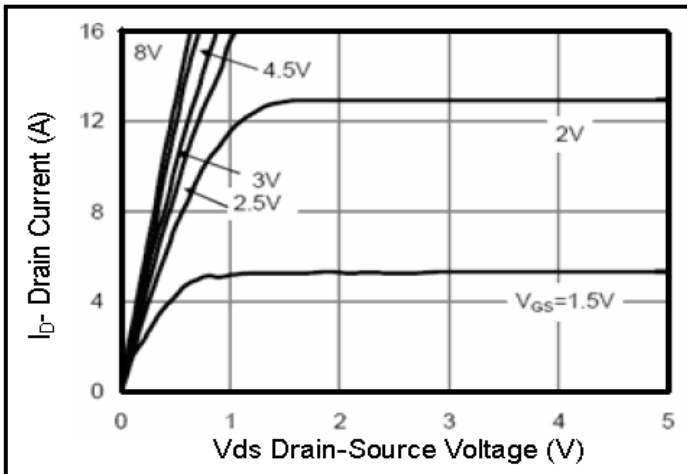


Figure 4 :Drain-Source On-Resistance

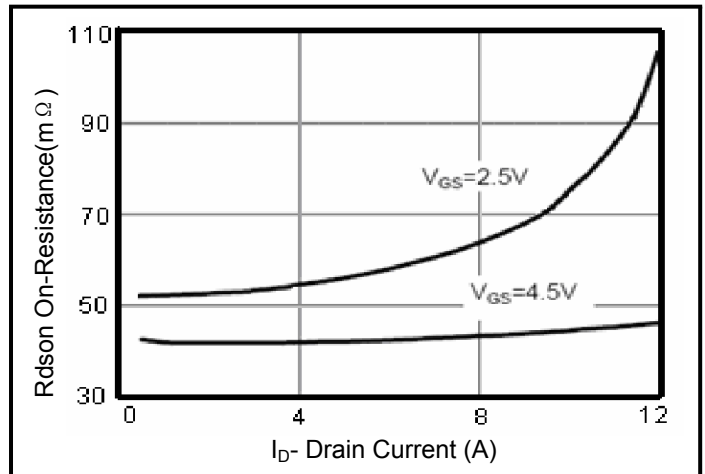


Figure 5 :Transfer Characteristics

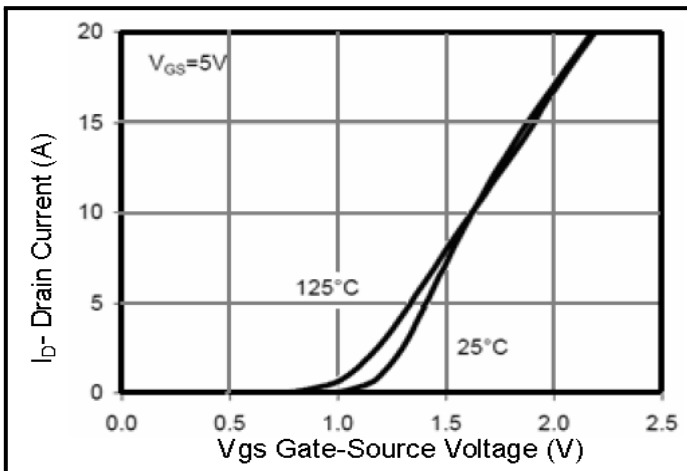
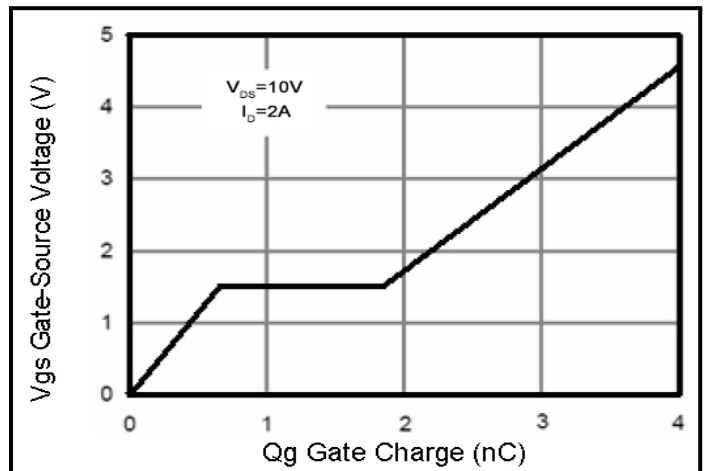


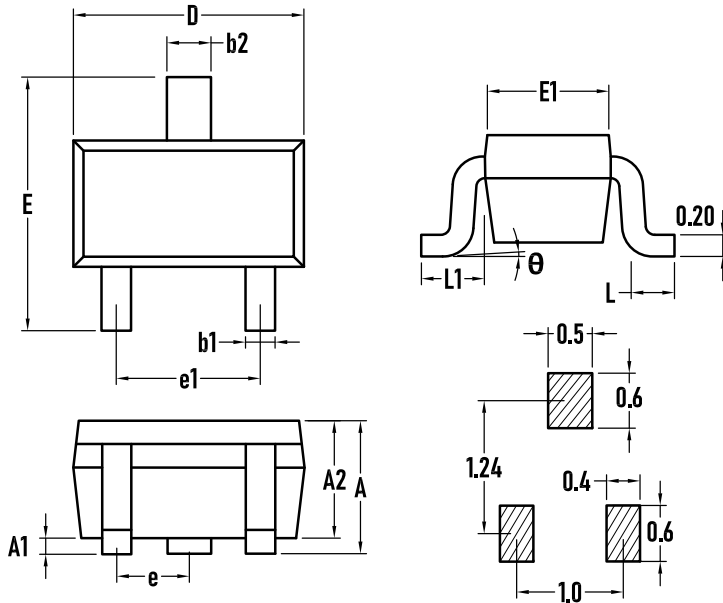
Figure 6 :Gate Charge



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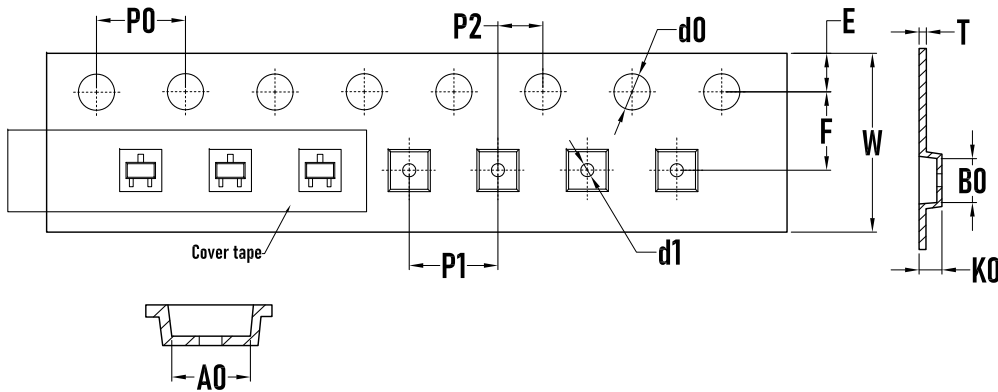
P-Channel MOSFET

Outline Drawing – SOT-523



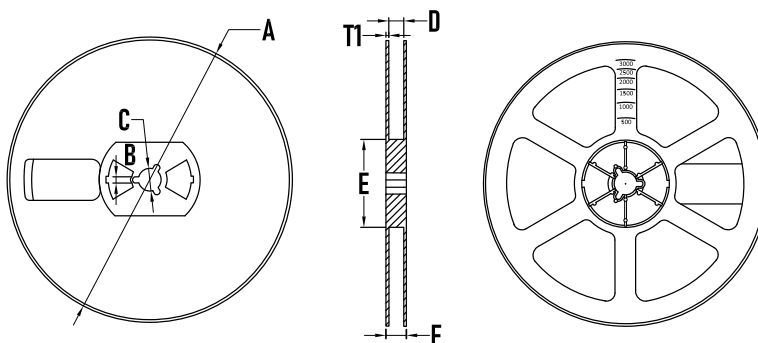
SYMBOL	MILLIMETER		
	MIN	TYP	MAX
A	0.70	0.80	0.90
A1	0.00	0.05	0.10
A2	0.70	0.75	0.80
b1	0.15	0.22	0.29
b2	0.25	0.32	0.39
D	1.50	1.60	1.70
E	1.45	1.60	1.75
E1	0.70	0.80	0.90
e	0.50(TPY.)		
e1	0.90	1.00	1.10
L	0.26	0.36	0.46
L1	0.40(REF)		
θ	0°	4°	8°

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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