

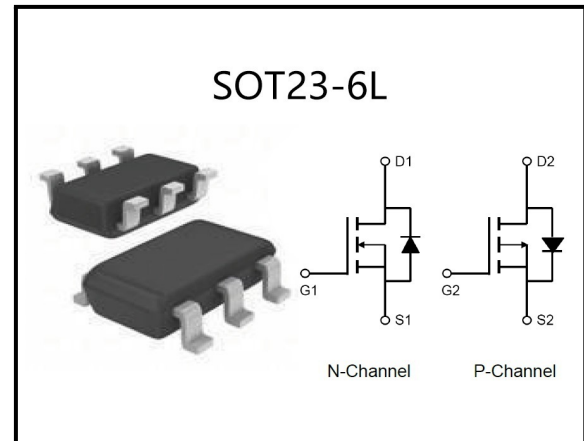
BM4608B

20V Complementary
Enhancement-Mode MOSFET

Features

- **N-Channel:**
- $V_{DS}=20V$
- $R_{DS(ON)} @V_{GS}=10V, MAX=42m\Omega$
- $R_{DS(ON)} @V_{GS}=4.5V, MAX=45m\Omega$
- **P-Channel:**
- $V_{DS}=-20V$
- $R_{DS(ON)} @V_{GS}=-10V, MAX=42m\Omega$
- $R_{DS(ON)} @V_{GS}=-4.5V, MAX=45m\Omega$

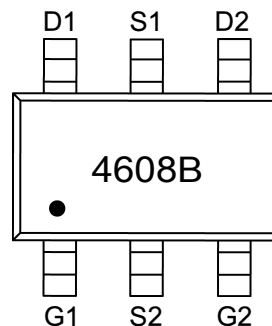
Package



General Description

- Low gate charge
- Use as a load switch
- Use in PWM applications

Marking



Ordering information

Order code	Package	Marking	Base qty	Delivery mode
BM4608B	SOT23-6L	4608B	3K	Tape and reel



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

Symbol	Parameter		Value		Units
			N-Channel	P-Channel	
V _{DS}	Drain-Source Voltage		20	-20	V
V _{GS}	Gate-Source Voltage		±12	±12	V
I _D	Continuous Drain Current	T _A = 25°C	3.8	-4.2	A
		T _A = 75°C	2.3	-2.5	
I _{DM}	Pulsed Drain Current ⁽¹⁾		10	-12	A
P _D	Maximum Power Dissipation ⁽²⁾	T _A = 25°C	1.25	1.25	W
		T _A = 75°C	0.75	0.75	
T _J , T _{stg}	Operating junction and storage temperature range		-55 to +150	-55 to +150	°C

Thermal Characteristics

Symbol	Parameter		Maximum		Units
			N-Channel	P-Channel	
R _{θJA}	Junction-to-Ambient ⁽³⁾	t ≤ 10s	100	100	°C/W
	Junction-to-Ambient ^(3,4)	Steady-State	130	130	
R _{θJL}	Junction-to-Lead	Steady-State	90	90	

Notes:

- (1) Repetitive rating, Pulse width limited by junction temperature T_{J(MAX)} = 150°C. Ratings are based on low frequency and duty cycles to keep initial T_J = 25°C.
- (2) The power dissipation P_D is based on T_{J(MAX)} = 150°C, using ≤ 10s junction-to-ambient thermal resistance.
- (3) The value of R_{θJA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C. The value in any given application depends on the user's specific board design.
- (4) The R_{θJA} is the sum of the thermal impedance from junction to lead R_{θJL} and lead to ambient.



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N-Channel Electrical Characteristics (@T_A=25°C unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
OFF Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250uA	20	–	–	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 20V, V _{GS} = 0V	–	–	1	uA
I _{GSS}	Gate Body Leakage Current	V _{GS} = ±12V, V _{DS} = 0V	–	–	±100	nA
ON Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	0.4	–	1.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} = 10V, I _D = 3A	–	32	42	mΩ
		V _{GS} = 4.5V, I _D = 2.5A	–	35	45	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHZ	–	750	–	pF
C _{oss}	Output Capacitance		–	100	–	
C _{rss}	Reverse Transfer Capacitance		–	73	–	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} = 10V, I _D = 1A, V _{GS} = 6V, R _{GEN} = 3Ω	–	15	–	ns
t _r	Turn-On Rise Time		–	6	–	
t _{d(off)}	Turn-Off Delay Time		–	26	–	
t _f	Turn-Off Fall Time		–	12	–	
Q _g	Total Gate Charge	V _{DS} = 10V I _D = 3A, V _{GS} = 6V	–	16	–	nC
Q _{gs}	Gate-Source Charge		–	2.8	–	
Q _{gd}	Gate-Drain Charge		–	4.1	–	
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _S = 1A, V _{GS} = 0V	–	–	1.2	V
I _S	Maximum Diode Continuous Current	–	–	–	2.0	A



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P-Channel Electrical Characteristics (@T_A=25°C unless otherwise noted)

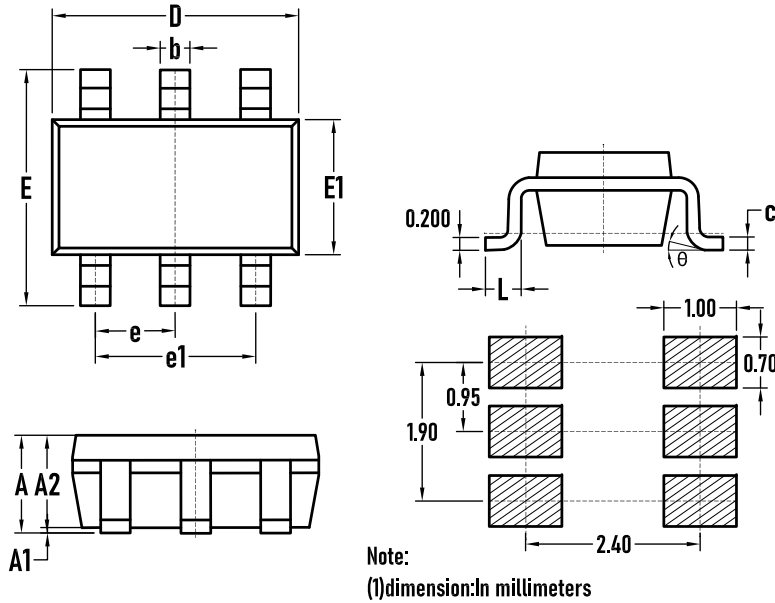
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
OFF Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250uA	-20	–	–	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} = 0V	–	–	-1	uA
I _{GSS}	Gate Body Leakage Current	V _{GS} = ±12V, V _{DS} = 0V	–	–	±100	nA
ON Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250uA	-0.4	–	-1.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} = -10V, I _D = -3A	–	30	42	mΩ
		V _{GS} = -4.5V, I _D = -2.5A	–	32	45	
Dynamic Characteristics						
C _{iSS}	Input Capacitance	V _{DS} = -10V, V _{GS} = 0V, f = 1.0MHZ	–	1022	–	pF
C _{oSS}	Output Capacitance		–	152	–	
C _{rSS}	Reverse Transfer Capacitance		–	164	–	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} = -10V, I _D = -1A, V _{GS} = -6V, R _{GEN} = 6Ω	–	16	–	ns
t _r	Turn-On Rise Time		–	6.8	–	
t _{d(off)}	Turn-Off Delay Time		–	32	–	
t _f	Turn-Off Fall Time		–	12	–	
Q _g	Total Gate Charge	V _{DS} = -10V I _D = -3A, V _{GS} = -6V	–	42	–	nC
Q _{gs}	Gate-Source Charge		–	7	–	
Q _{gd}	Gate-Drain Charge		–	9	–	
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _S = -1A, V _{GS} = 0V	–	–	-1.2	V
I _S	Maximum Diode Continuous Current	–	–	–	-2.0	A



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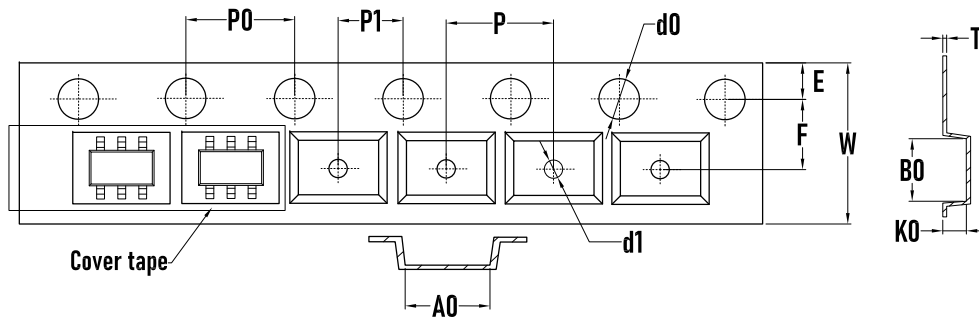
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Outline Drawing - SOT23-6L



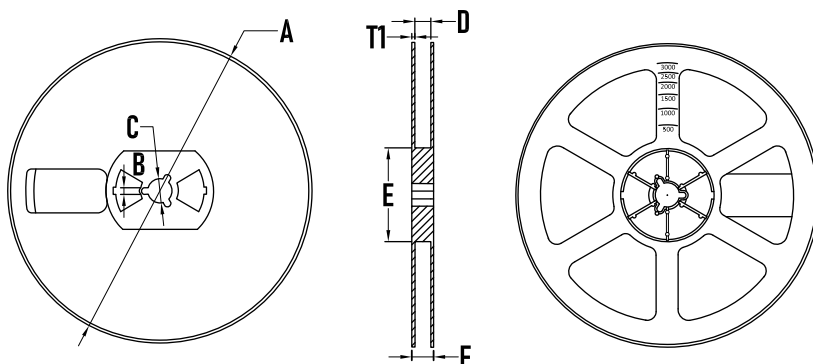
SYMBOL	MILLIMETER		Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
C	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Packaging Tape - SOT23-6L



SYMBOL	MILLIMETER
A0	3.25±0.1
B0	3.3±0.1
d0	1.55±0.1
d1	1.0±0.1
E	1.75±0.1
F	3.50±0.1
K0	1.38±0.1
P	4.00±0.1
P0	4.00±0.1
P1	2.00±0.1
W	8.00±0.2
T	0.2±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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