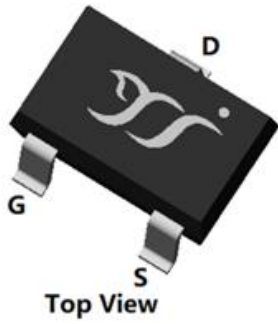
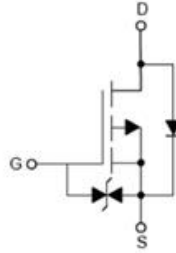
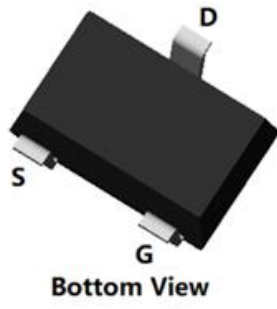




P-Channel Enhancement Mode Field Effect Transistor



SOT-323



Product Summary

- V_{DS} -60V
- I_D -0.25A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) $<3.4\Omega$
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) $<4.7\Omega$
- ESD protected up to 2.0KV (HBM)

General Description

- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Power management
- Load Switch

■ Limiting Values

Parameter	Conditions		Symbol	Min	Max	Unit
Drain-source Voltage			V _{DS}	-	-60	V
Gate-source Voltage (Note 4)			V _{GS}	-20	20	
Continuous Drain Current (Note 1,2)	Steady-State	T _A =25°C,V _{GS} =-10V	I _D	-	-0.25	A
		T _A =100°C,V _{GS} =-10V		-	-0.16	
Pulsed Drain Current	T _A =25°C,t _p ≤10μs		I _{DM}	-	-1.8	
Maximum Body-Diode Continuous Current	T _A =25°C		I _S		-0.25	
Total Power Dissipation (Note 1,2)	Steady-State	T _A =25°C	P _D	-	0.39	W
		T _A =100°C		-	0.16	
Junction and Storage Temperature Range			T _J ,T _{STG}	-55	150	°C

■ Thermal Resistance

Parameter		Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient (Note 2)	Steady-State	$R_{\theta JA}$	-	320	$^{\circ}C/W$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BSS84WAJK	F2	B84K.	3000	30000	120000	7" reel



BSS84WAJK

■ Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V,I _b =-250μA,T _j =25°C	-60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V,V _{GS} =0V,T _j =25°C	-	-	-1	μA
		V _{DS} =-60V,V _{GS} =0V,T _j =150°C	-	-	-100	
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V,T _j =25°C	-	-	±10	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =-250μA,T _j =25°C	-1	-1.5	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V,I _D =-0.25A,T _j =25°C	-	2	3.4	Ω
		V _{GS} =-4.5V,I _D =-0.2A,T _j =25°C	-	2.6	4.7	Ω
Diode Forward Voltage	V _{SD}	I _S =-0.25A,V _{GS} =0V,T _j =25°C	-	-0.88	-1.2	V
Gate Resistance	R _G	f=1MHz,T _j =25°C	-	900	-	Ω
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-30V,V _{GS} =0V,f=1MHz,T _j =25°C	-	36	-	pF
Output Capacitance	C _{oss}		-	4.8	-	
Reverse Transfer Capacitance	C _{rss}		-	2.5	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V,V _{DS} =-30V,I _D =-0.4A,T _j =25°C	-	1.53	-	nC
Gate-Source Charge	Q _{gs}		-	0.17	-	
Gate-Drain Charge	Q _{gd}		-	0.23	-	
Reverse Recovery Charge	Q _{rr}	I _F =-0.4A,di/dt=100A/μs,V _{GS} =0V, V _R =-30V,T _j =25°C	-	9	-	nC
Reverse Recovery Time	t _{rr}		-	15	-	ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V,V _{DS} =-30V,I _D =-0.4A,R _{GEN} =3Ω, T _j =25°C	-	5.4	-	ns
Turn-on Rise Time	t _r		-	3.8	-	
Turn-off Delay Time	t _{D(off)}		-	32	-	
Turn-off Fall Time	t _f		-	34	-	

Note:

1. The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
2. The value of $R_{\theta JA}$ is measured with the device mounted on the 40mm*40mm*1.1mm single layer FR-4 PCB board with 1 in² pad of 2oz. Copper, in the still air environment with $T_A=25^\circ C$. The maximum allowed junction temperature of $150^\circ C$. The value in any given application depends on the user's specific board design.
3. Thermal resistance from junction to soldering point (on the exposed drain pad).



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■ Typical Electrical and Thermal Characteristics Diagrams

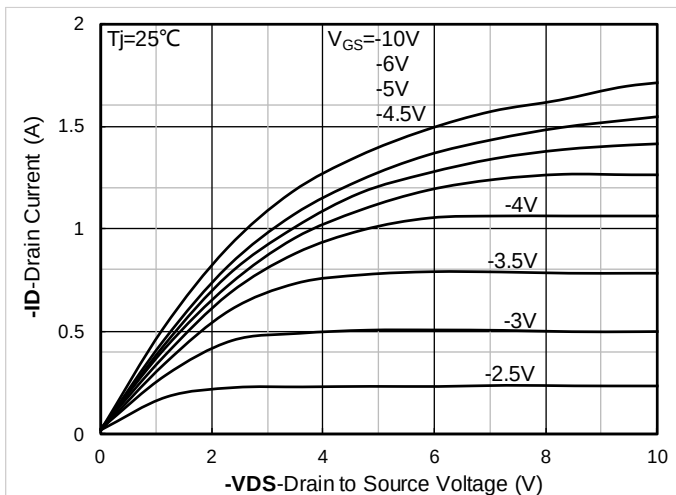


Figure 1. Output Characteristics; typical values

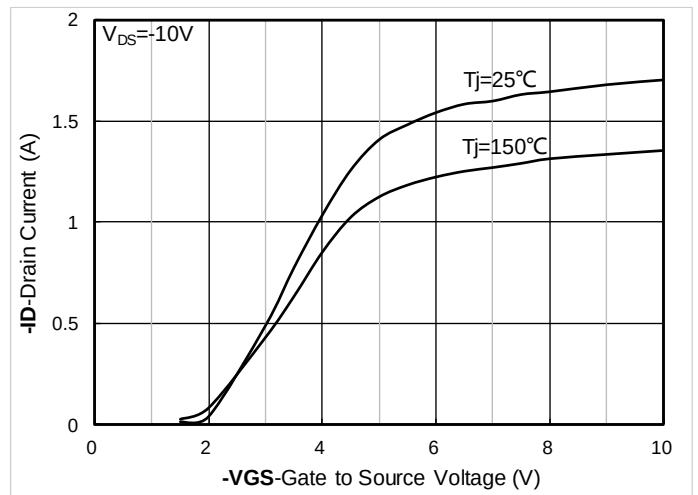


Figure 2. Transfer Characteristics; typical values

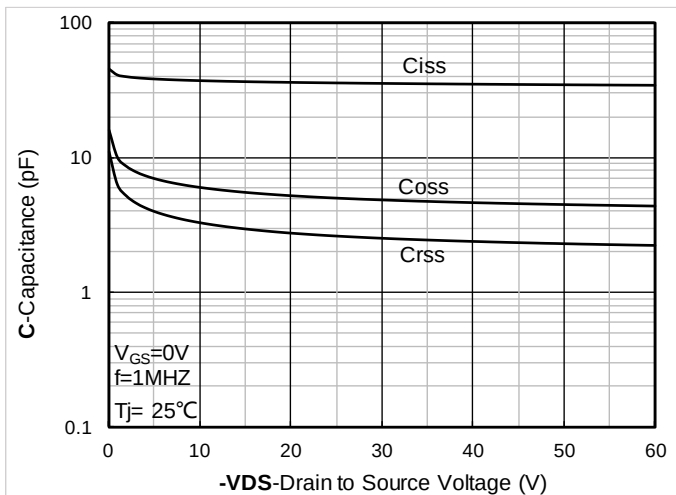


Figure 3. Capacitance Characteristics; typical values

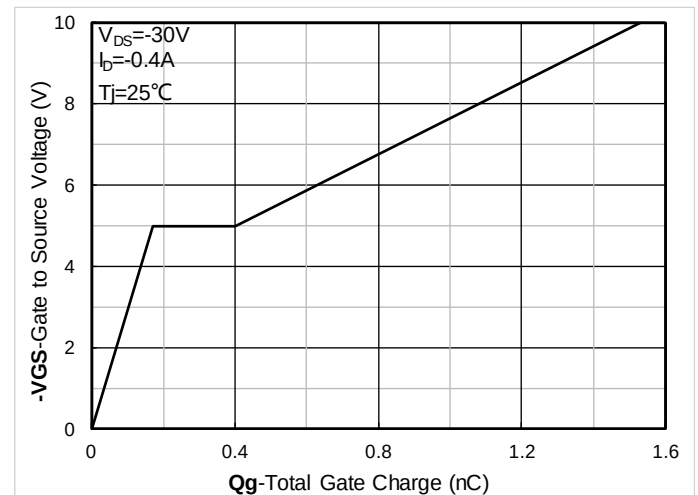


Figure 4. Gate Charge; typical values

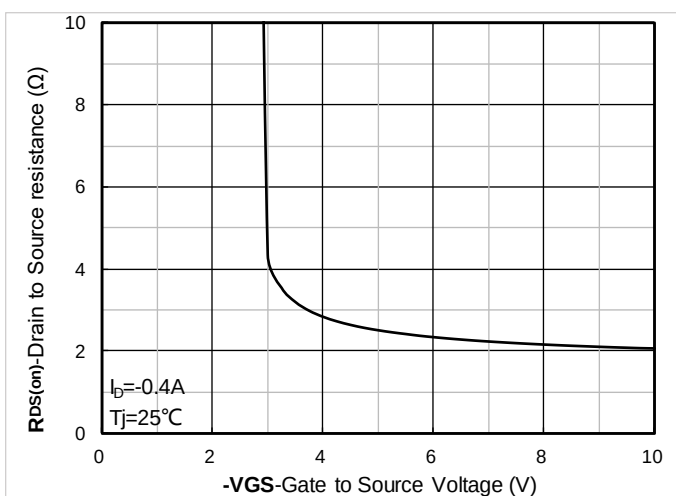


Figure 5. On-Resistance vs. Gate to Source Voltage; typical values

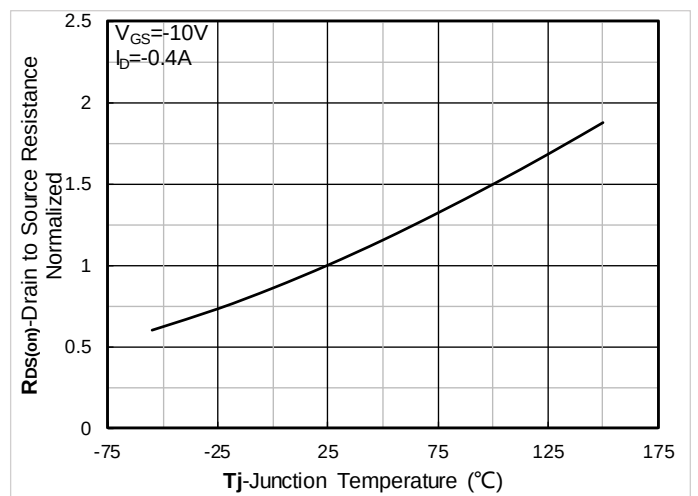


Figure 6. Normalized On-Resistance



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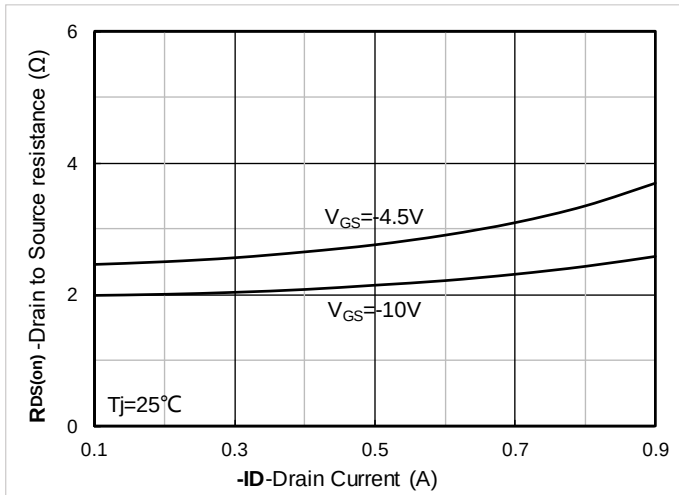


Figure 7. $R_{DS(on)}$ vs. Drain Current; typical values

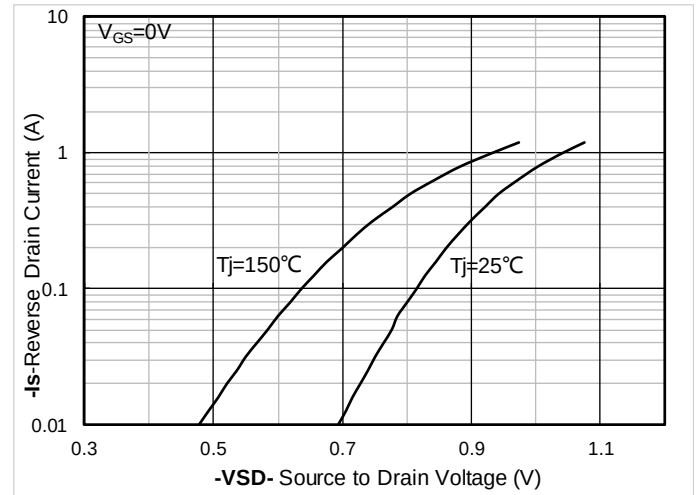


Figure 8. Forward characteristics of reverse diode; typical values

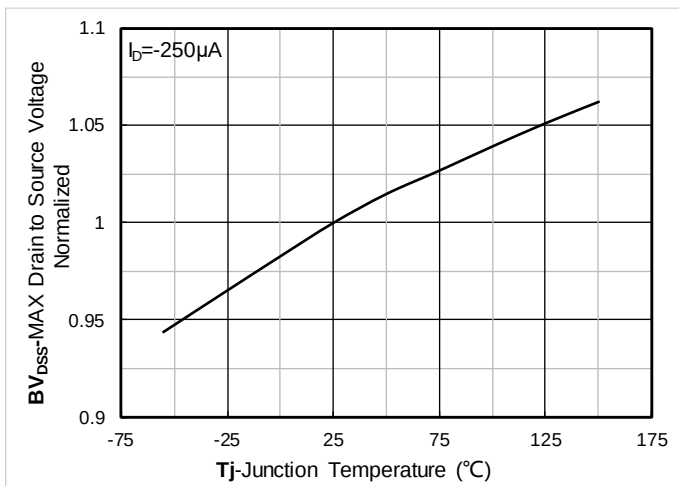


Figure 9. Normalized breakdown voltage

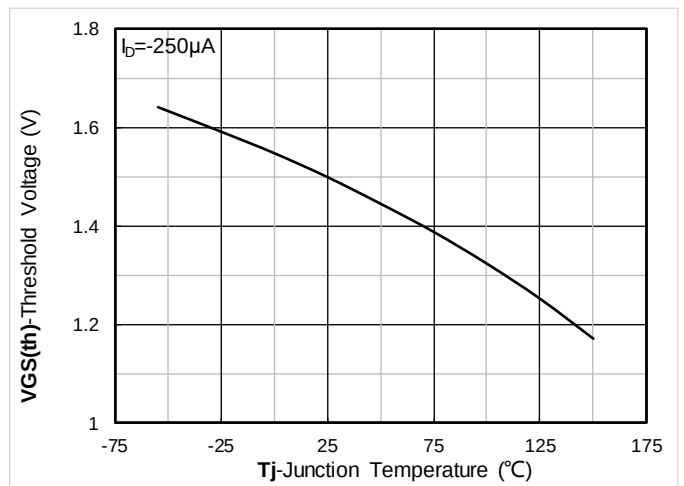


Figure 10. Gate Threshold voltage; typical values

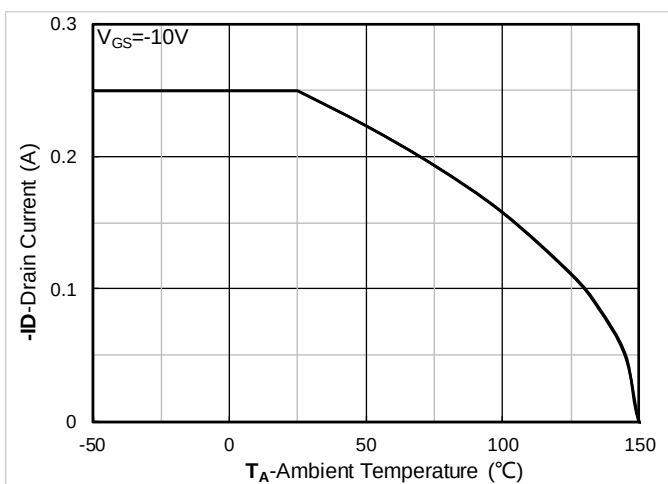


Figure 11. Current dissipation

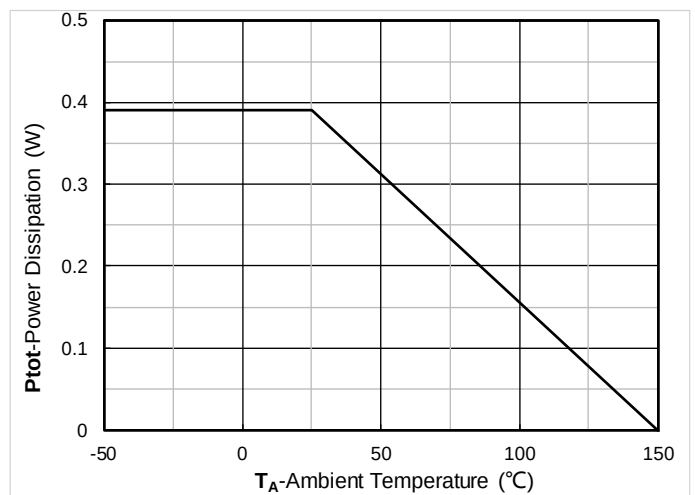


Figure 12. Power dissipation



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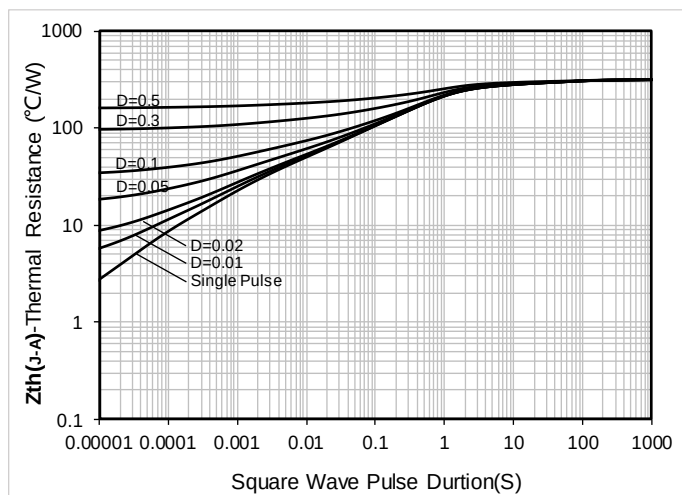


Figure 13. Maximum Transient Thermal Impedance

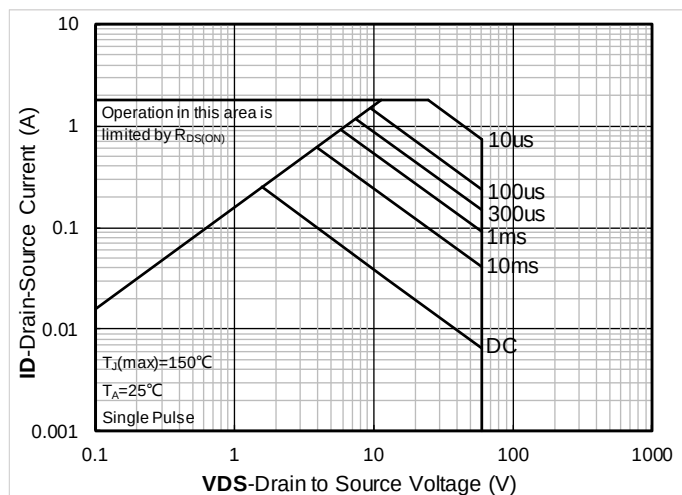
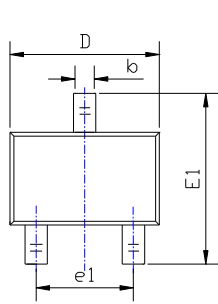


Figure 14. Safe Operation Area

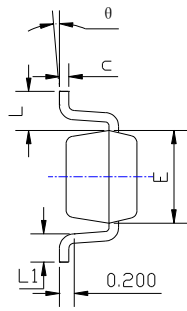


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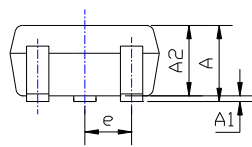
■ SOT-323 Package information



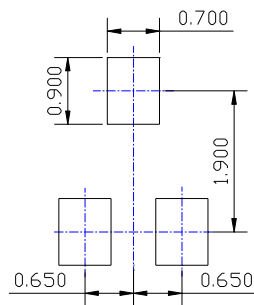
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

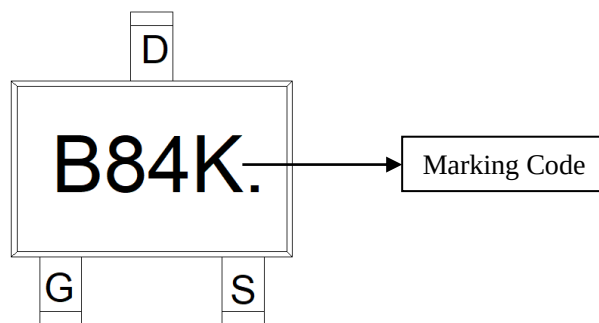
SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.016	0.150	0.400
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

NOTE:

- 1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
- 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
- 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

■ Marking Information



Note:

1. All marking is at middle of the product body
2. All marking is in laser printing
3. B84K.is Marking Code
4. Body color: Black



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