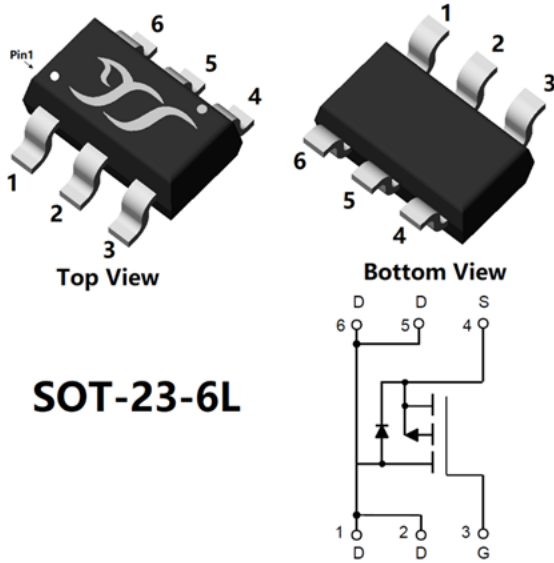


P-Channel Enhancement Mode Field Effect Transistor



Product Summary

• V_{DS}	-40V
• I_D	-3A
• $R_{DS(ON)}$ (at $V_{GS}=-10V$)	<80mΩ
• $R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	<121mΩ
• ESD Level(HBM)	H1A

General Description

- High speed switching
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Power switching application
- Uninterruptible power supply
- PWM application

Limiting Values

Parameter	Conditions		Symbol	Min	Max	Unit
Drain-source Voltage			V _{DS}	-	-40	V
Gate-source Voltage			V _{GS}	-20	20	
Continuous Drain Current (Note 1,2)	Steady-State	T _A =25°C,V _{GS} =-10V	I _D	-	-3	A
		T _A =100°C,V _{GS} =-10V		-	-1.9	
Pulsed Drain Current	T _A =25°C,t _p ≤10μs		I _{DM}	-	-12	
Maximum Body-Diode Continuous Current	T _A =25°C		I _S		-1	
Total Power Dissipation (Note 1,2)	Steady-State	T _A =25°C	P _D	-	1.27	W
		T _A =100°C		-	0.51	
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	$R_{\theta JA}$	-	98	$^{\circ}C/W$



YJJ080P04A

■ Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA, T _J =25°C	-40	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-40V, V _{GS} =0V, T _J =25°C	-	-	-1	μA
		V _{DS} =-40V, V _{GS} =0V, T _J =125°C	-	-	-100	
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V, T _J =25°C	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA, T _J =25°C	-1.1	-1.6	-2.1	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-3A, T _J =25°C	-	59	80	mΩ
		V _{GS} =-4.5V, I _D =-2A, T _J =25°C	-	81	121	mΩ
Diode Forward Voltage	V _{SD}	I _S =-3A, V _{GS} =0V, T _J =25°C	-	-0.87	-1.2	V
Gate Resistance	R _G	f=1MHz, T _J =25°C	-	18	-	Ω
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-20V, V _{GS} =0V, f=1MHz, T _J =25°C	-	428	-	pF
Output Capacitance	C _{oss}		-	48	-	
Reverse Transfer Capacitance	C _{rss}		-	40	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-20V, I _D =-3A, T _J =25°C	-	10	-	nC
Gate-Source Charge	Q _{gs}		-	1.3	-	
Gate-Drain Charge	Q _{gd}		-	1.6	-	
Reverse Recovery Charge	Q _{rr}	I _F =-3A, di/dt=100A/μs, V _{GS} =0V, V _R =-20V, T _J =25°C	-	14	-	nC
Reverse Recovery Time	t _{rr}		-	16.7	-	ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V, V _{DS} =-20V, I _D =-3A, R _{GEN} =3Ω, T _J =25°C	-	5.1	-	ns
Turn-on Rise Time	t _r		-	2.7	-	
Turn-off Delay Time	t _{D(off)}		-	31.7	-	
Turn-off Fall Time	t _f		-	20.3	-	

Note:

- The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
- 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.

■ Typical Electrical and Thermal Characteristics Diagrams

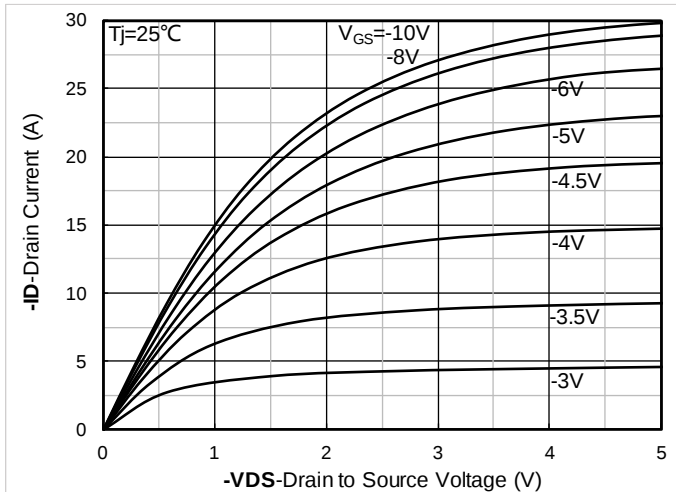


Figure 1. Output Characteristics; typical values

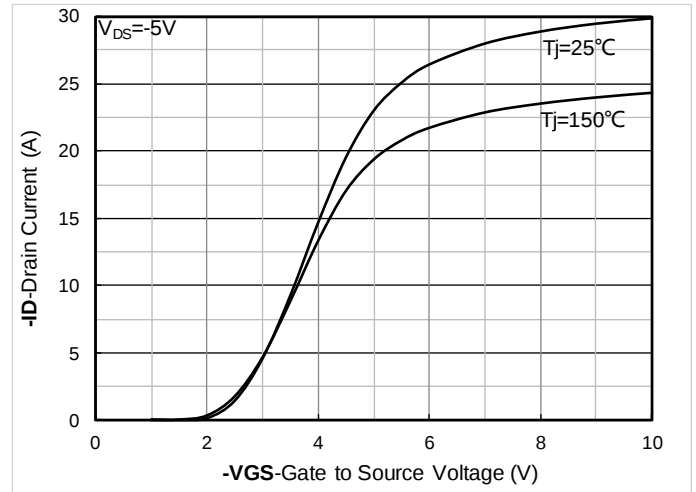


Figure 2. Transfer Characteristics; typical values

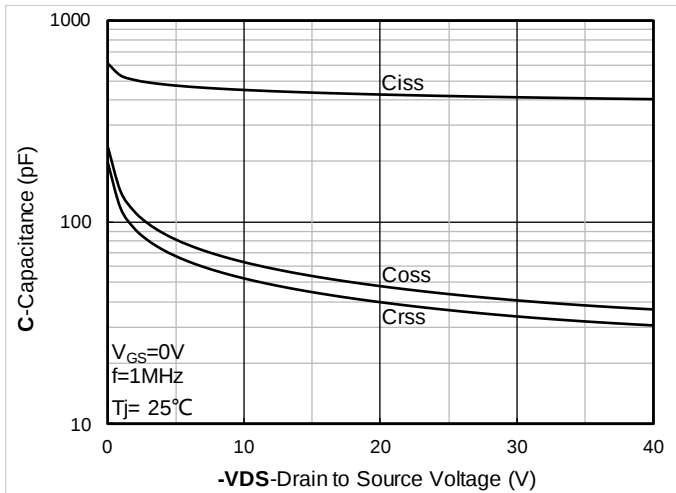


Figure 3. Capacitance Characteristics; typical values

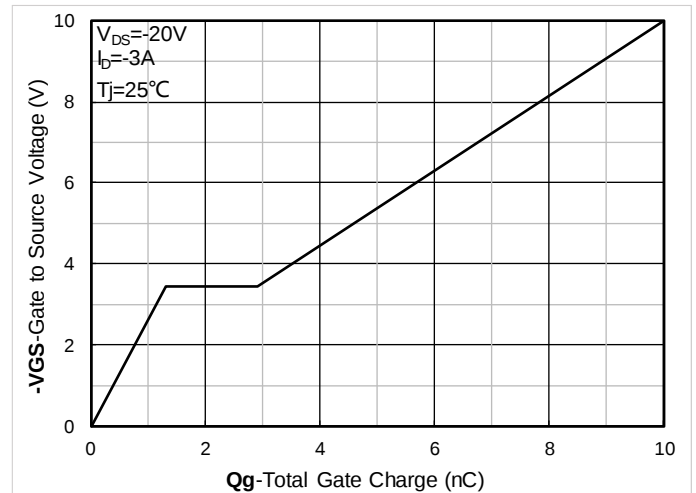


Figure 4. Gate Charge; typical values

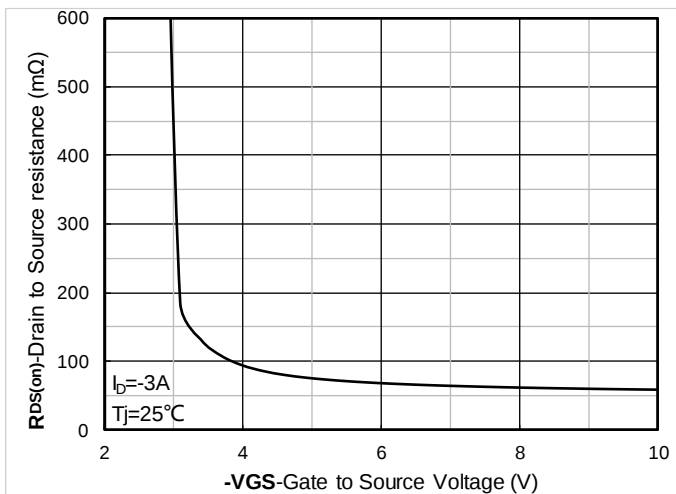


Figure 5. On-Resistance vs Gate to Source Voltage; typical values

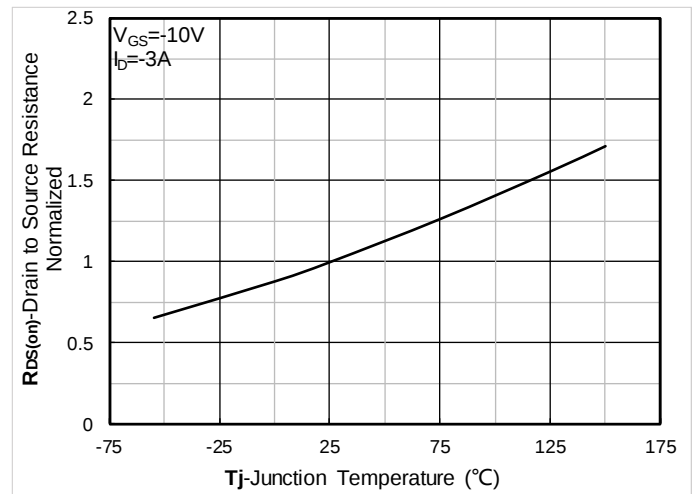


Figure 6. Normalized On-Resistance

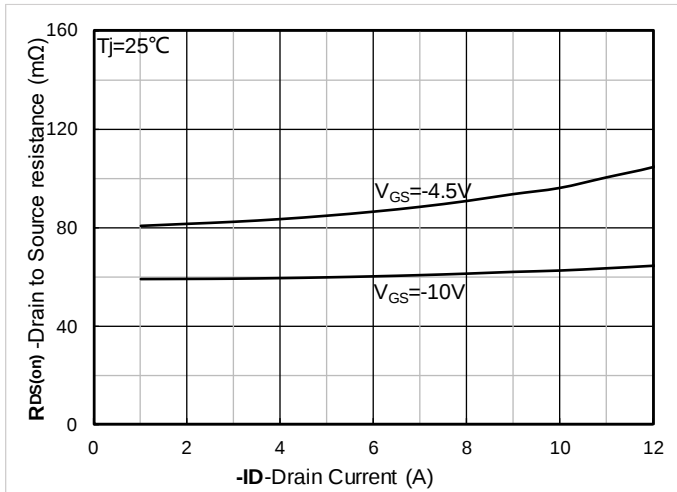


Figure 7. $R_{DS(on)}$ VS Drain Current; typical values

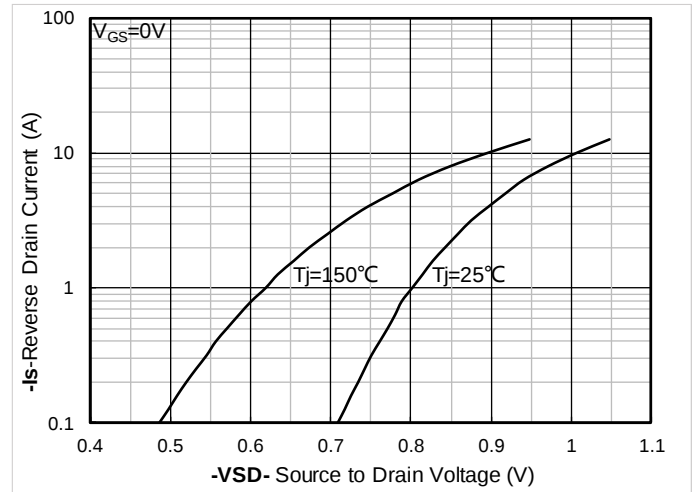


Figure 8. Forward characteristics of reverse diode; typical values

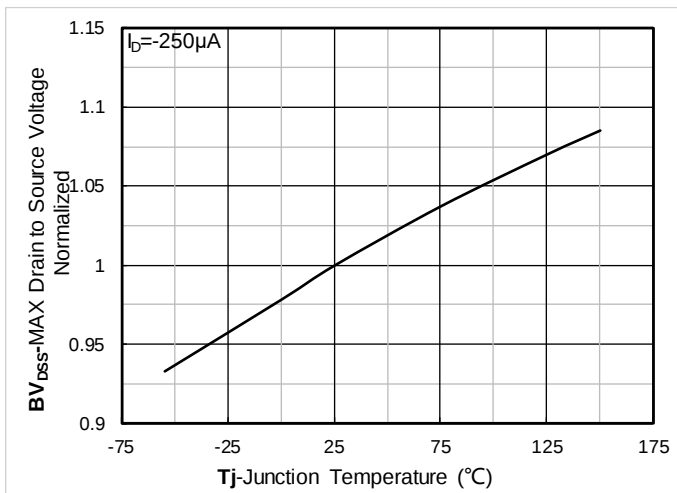


Figure 9. Normalized breakdown voltage

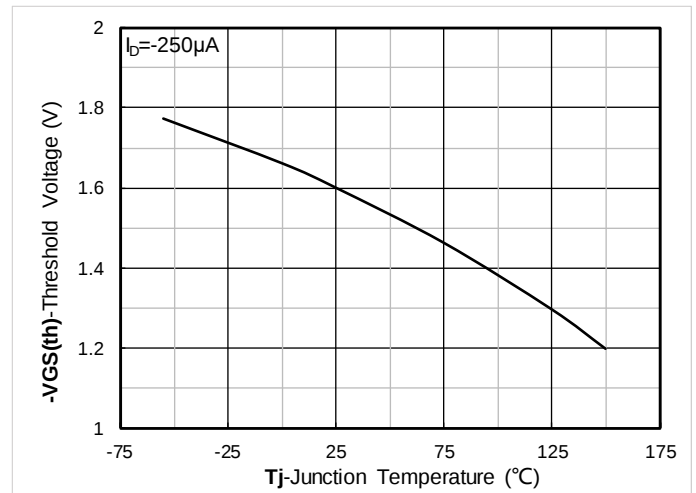


Figure 10. Gate Threshold voltage; typical values

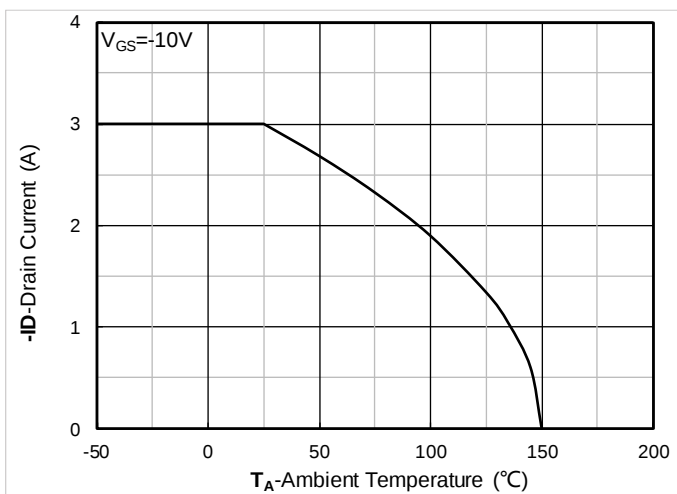


Figure 11. Current dissipation

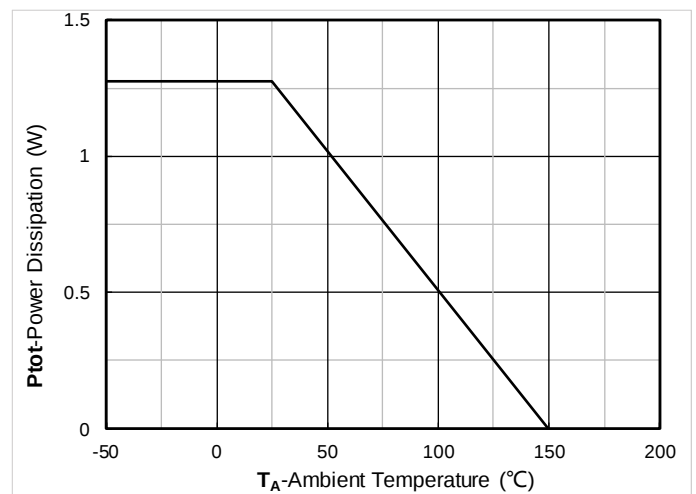


Figure 12. Power dissipation

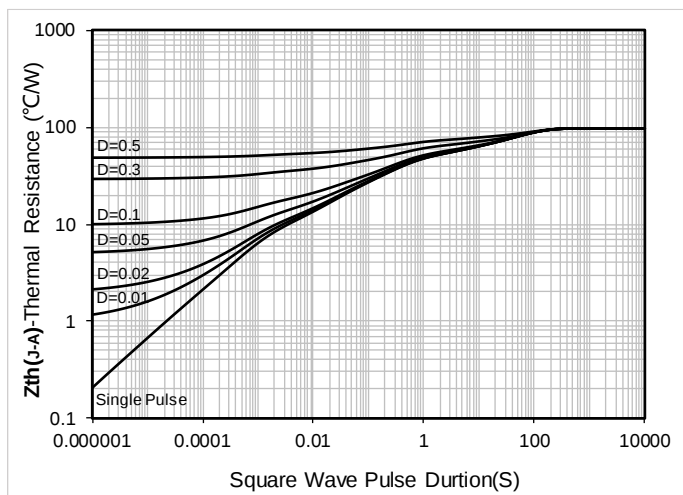


Figure 13. Maximum Transient Thermal Impedance

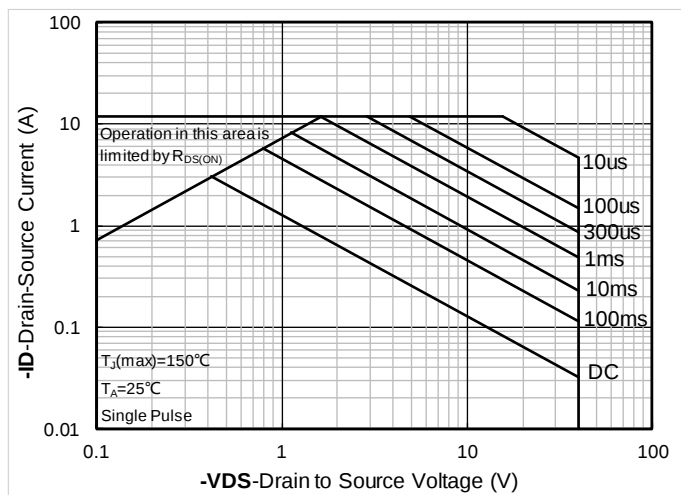
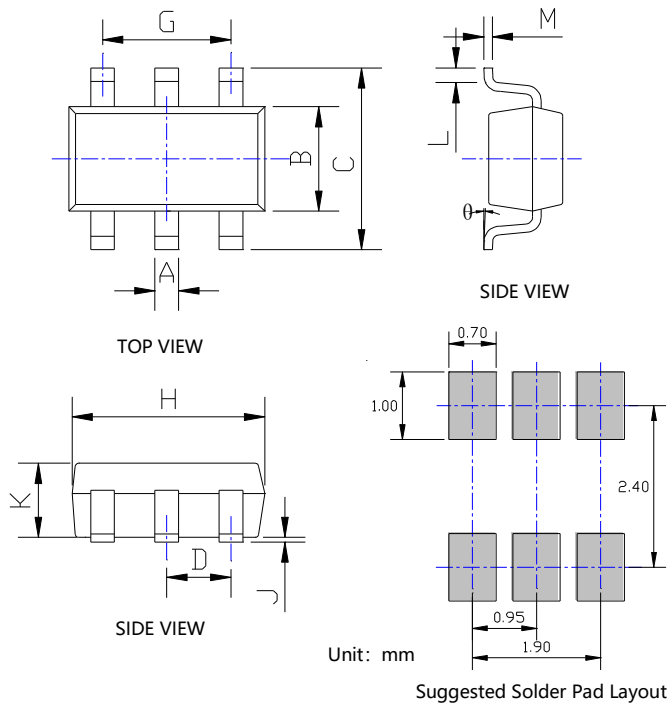


Figure 14. Safe Operation Area

■ SOT-23-6L Package information



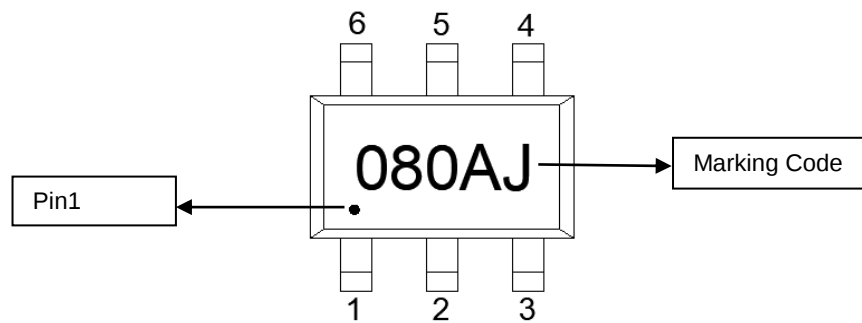
SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.012	0.020	0.300	0.500
B	0.059	0.067	1.500	1.700
C	0.104	0.116	2.650	2.950
D	0.037BSC		0.950BSC	
G	0.075BSC		1.900BSC	
H	0.111	0.119	2.820	3.020
J	0.000	0.004	0.000	0.100
K	0.041	0.045	1.050	1.150
L	0.012	0.024	0.300	0.600
M	0.004	0.008	0.100	0.200
θ	0°	8°	0°	8°

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
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. 080AJ is marking code
4. Body color: Black



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