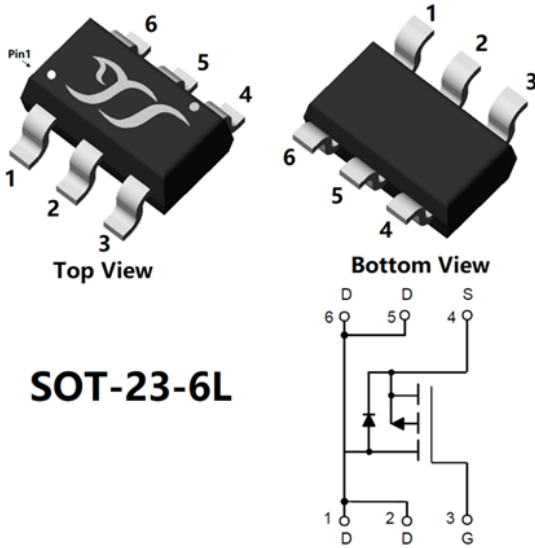


P-Channel Enhancement Mode Field Effect Transistor



Product Summary

• V_{DS}	-60V
• I_D	-2.4A
• $R_{DS(ON)}$ (at $V_{GS}=-10V$)	<125mΩ
• $R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	<175mΩ

General Description

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

Applications

- Reverse polarity protection
- Load switch

Limiting Values

Parameter	Conditions	Symbol	Min	Max	Unit
Drain-source Voltage		V_{DS}	-	-60	V
Gate-source Voltage		V_{GS}	-20	20	
Continuous Drain Current (Note 1,2)	Steady-State	I_D	-	-2.4	A
	$T_A=25^{\circ}C, V_{GS}=-10V$		-	-1.5	
Pulsed Drain Current	$T_A=25^{\circ}C, t_p \leq 10\mu s$	I_{DM}	-	-19.2	
Maximum Body-Diode Continuous Current	$T_A=25^{\circ}C$	I_S		-1.2	
Total Power Dissipation (Note 1,2)	Steady-State	P_D	-	1.43	W
	$T_A=100^{\circ}C$		-	0.57	
Junction and Storage Temperature Range		T_J, T_{STG}	-55	150	$^{\circ}C$

Thermal Resistance

Parameter	Symbol	Typ	Max	Units
Thermal Resistance Junction-to-Ambient (Note 2)	$R_{\theta JA}$	-	87	$^{\circ}C/W$

Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJJ125P06A	F2	125P06	3000	30000	120000	7" reel



YJJ125P06A

■ 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	-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	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =-250μA,T _J =25°C	-1	-1.5	-2	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V,I _D =-2A,T _J =25°C	-	98	125	mΩ
		V _{GS} =-4.5V,I _D =-1A,T _J =25°C	-	117	175	mΩ
Diode Forward Voltage	V _{SD}	I _S =-1A,V _{GS} =0V,T _J =25°C	-	-0.79	-1.2	V
Gate Resistance	R _G	f=1MHz,T _J =25°C	-	9	-	Ω
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-30V,V _{GS} =0V,f=1MHz,T _J =25°C	-	694	-	pF
Output Capacitance	C _{oss}		-	39	-	
Reverse Transfer Capacitance	C _{rss}		-	32	-	
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V,V _{DS} =-30V,I _D =-2A,T _J =25°C	-	16.4	-	nC
Gate-Source Charge	Q _{gs}		-	1.7	-	
Gate-Drain Charge	Q _{gd}		-	2.5	-	
Reverse Recovery Charge	Q _{rr}	I _F =-2A,di/dt=100A/μs,V _{GS} =0V, V _R =-30V,T _J =25°C	-	21	-	nC
Reverse Recovery Time	t _{rr}		-	20	-	ns
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V,V _{DS} =-30V,I _D =-2A,R _{GEN} =3Ω, T _J =25°C	-	6.3	-	ns
Turn-on Rise Time	t _r		-	3.1	-	
Turn-off Delay Time	t _{D(off)}		-	26.8	-	
Turn-off Fall Time	t _f		-	5.2	-	

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

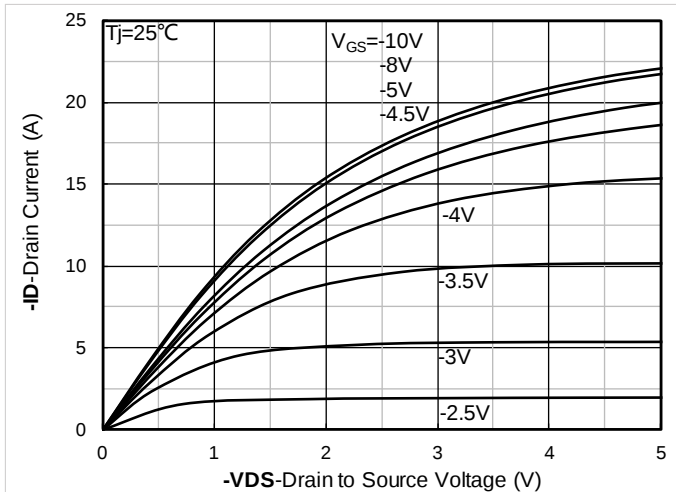


Figure 1. Output Characteristics; typical values

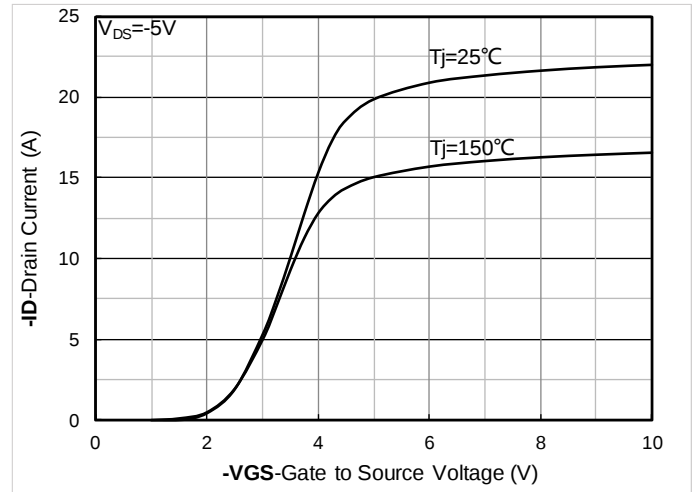


Figure 2. Transfer Characteristics; typical values

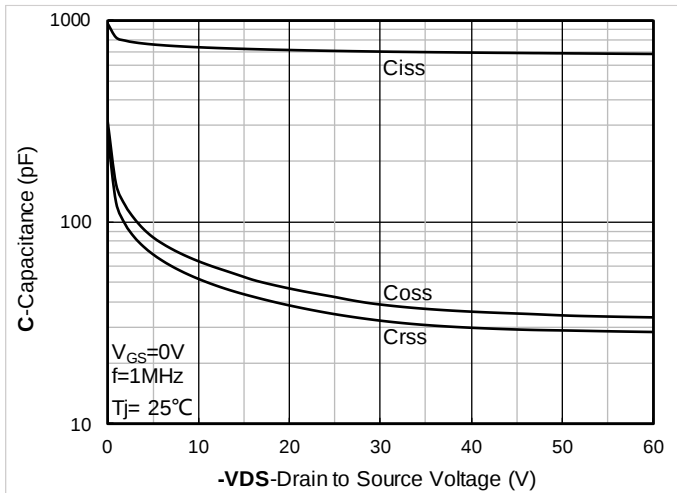


Figure 3. Capacitance Characteristics; typical values

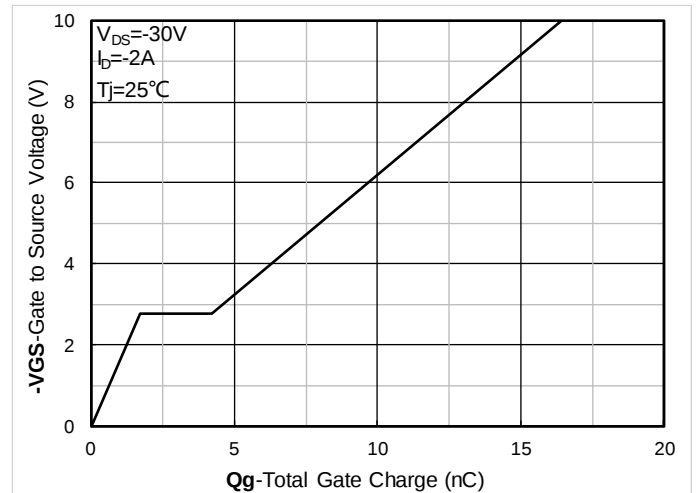


Figure 4. Gate Charge; typical values

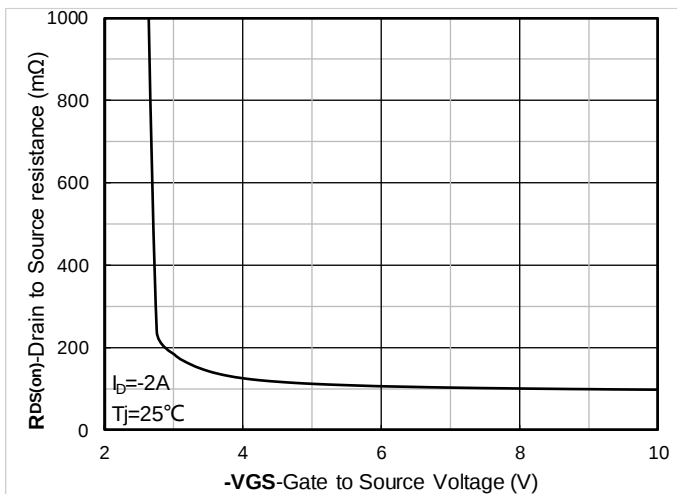


Figure 5. On-Resistance vs Gate to Source Voltage; typical values

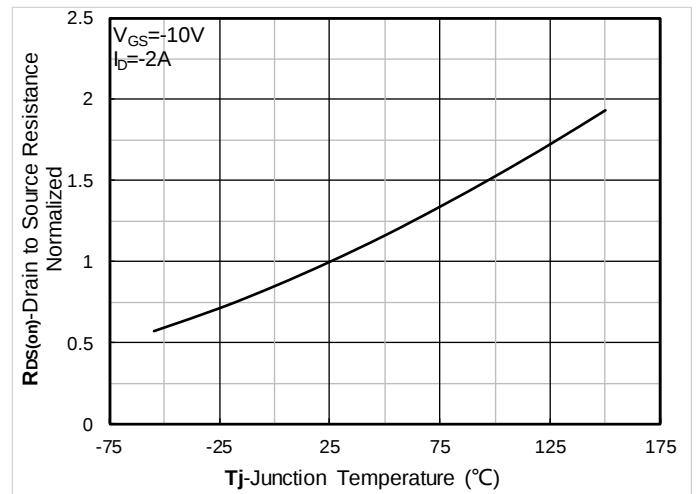


Figure 6. Normalized On-Resistance

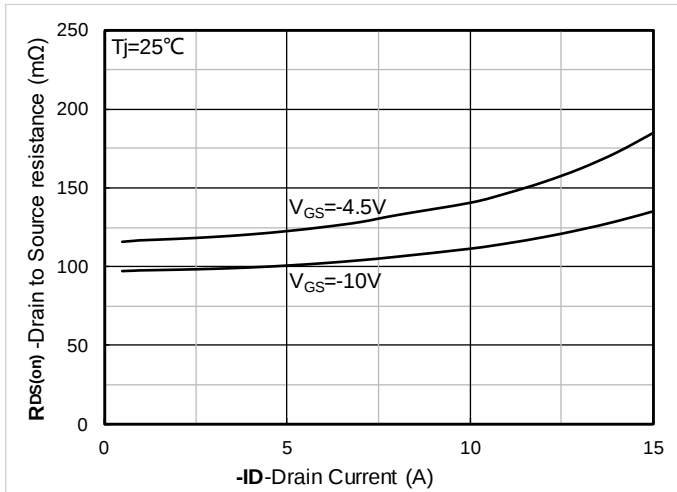


Figure 7. $R_{DS(on)}$ VS Drain Current; typical values

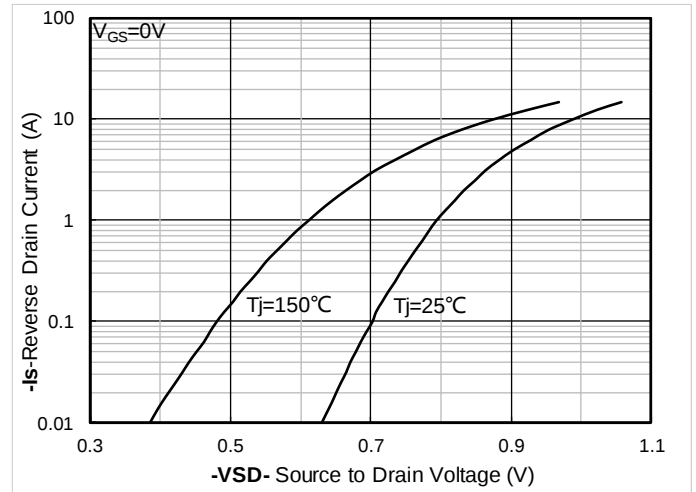


Figure 8. Forward characteristics of reverse diode; typical values

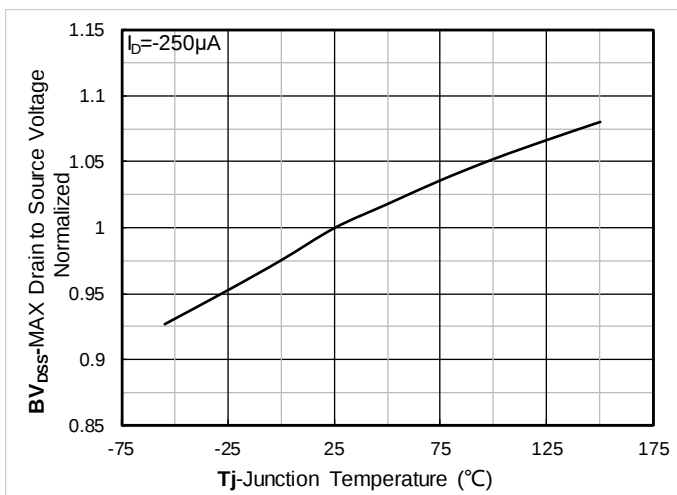


Figure 9. Normalized breakdown voltage

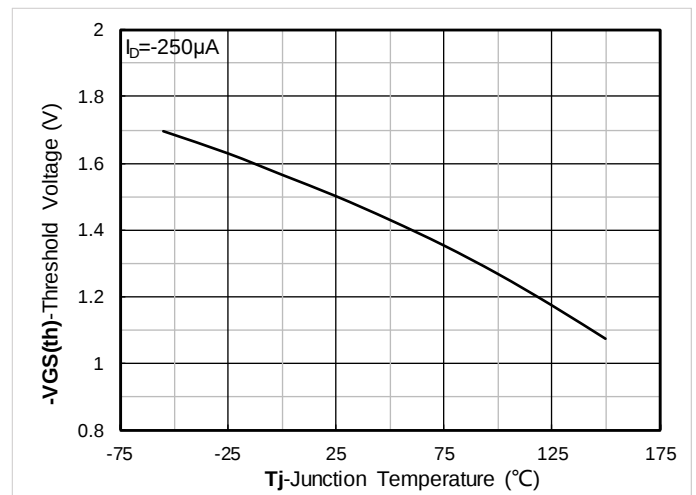


Figure 10. Gate Threshold voltage; typical values

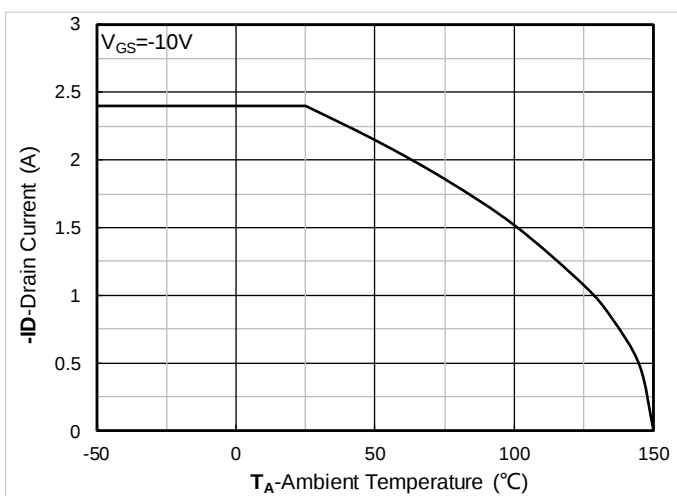


Figure 11. Current dissipation

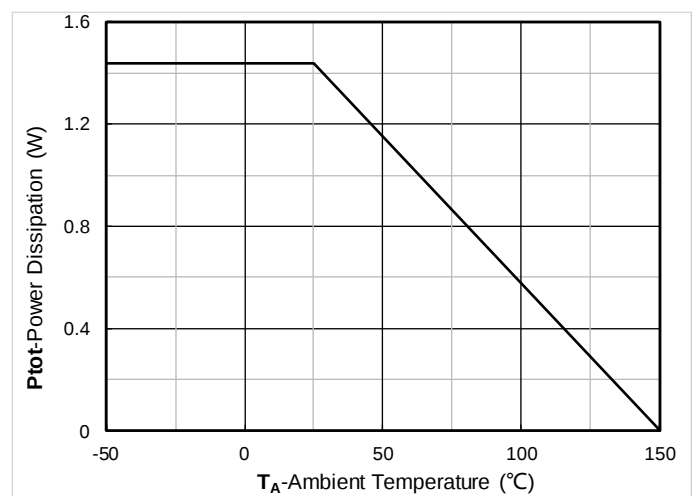


Figure 12. Power dissipation

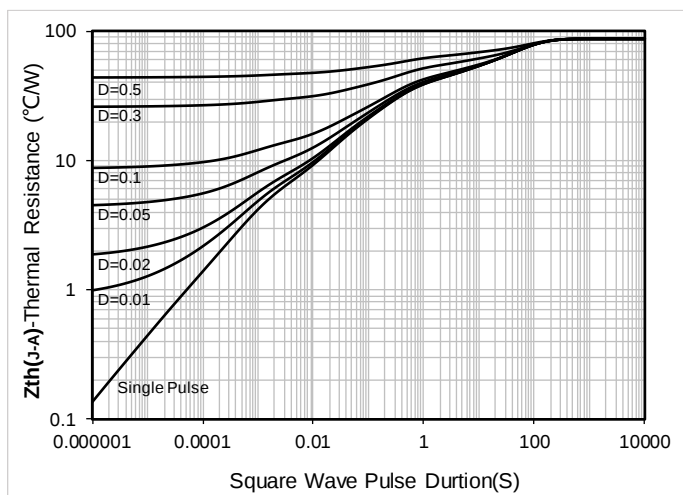


Figure 13. Maximum Transient Thermal Impedance

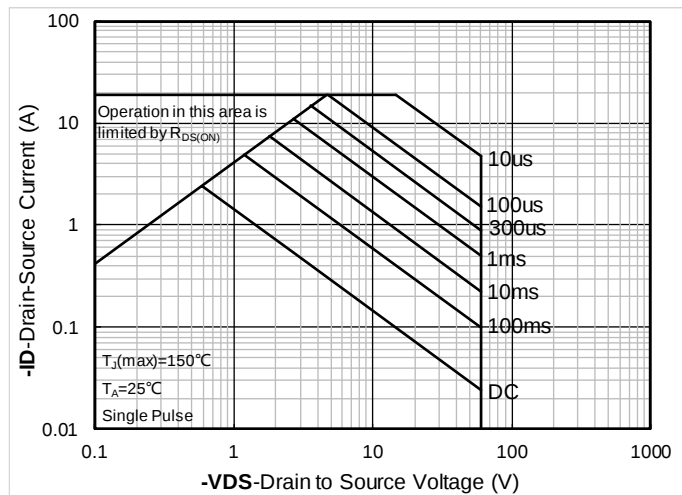
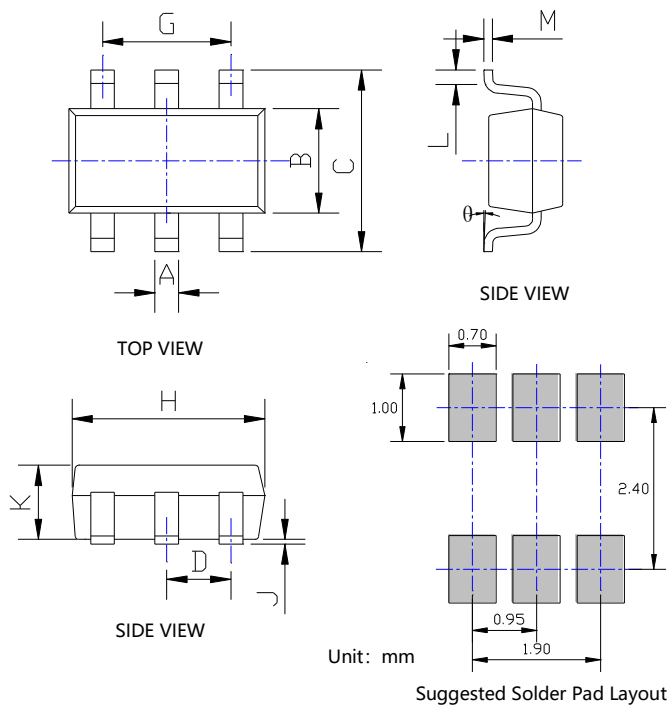


Figure 14. Safe Operation Area



■ SOT-23-6L Package information



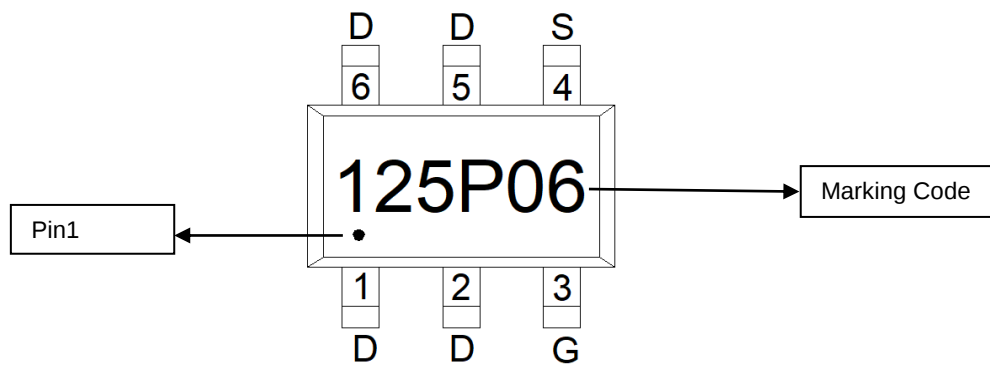
SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.012	0.020	0.300	0.500
B	0.059	0.067	1.500	1.700
C	0.104	0.116	2.650	2.950
D	0.037BSC		0.950BSC	
G	0.075BSC		1.900BSC	
H	0.111	0.119	2.820	3.020
J	0.000	0.004	0.000	0.100
K	0.041	0.045	1.050	1.150
L	0.012	0.024	0.300	0.600
M	0.004	0.008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

Note:

- 1.Controlling dimension:in millimeters.
- 2.General tolerance:±0.05mm.
- 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. 125P06 is marking code
4. Body color: Black



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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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