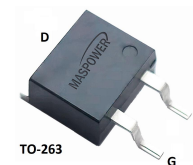
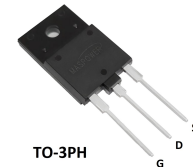
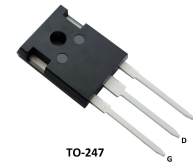
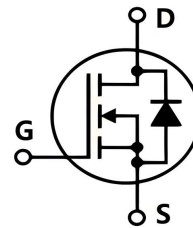


Features

- 100% avalanche tested
- Avalanche ruggedness
- Gate charge minimized
- Very low intrinsic capacitances
- High speed switching
- Very low on-resistance



Applications

- Welder
- UPS
- PV Inverter
- Switching applications

Absolute maximum ratings

Parameter	Symbol	Value	Unit
Drain-source voltage ($V_{GS} = 0$)	V_{DSS}	1500	V
Transient Gate- source voltage	V_{GSM}	± 30	
Continuous Gate- source voltage(DC)	V_{GSS}	± 20	
Drain current (continuous) at $T_C = 25^\circ\text{C}$	I_D	6	A
Drain current (continuous) at $T_C = 100^\circ\text{C}$		4	
Drain current (pulsed)	I_{DM}	24	
Avalanche current, repetitive or not-repetitive (pulse width limited by T_J max)	I_{AR}	5	A
Single pulse avalanche energy (starting $T_J = 25^\circ\text{C}$, $I_D = I_{AR}$, $V_{DD} = 50\text{ V}$)	E_{AS}	62.5	mJ
Total dissipation at $T_C = 25^\circ\text{C}$ TO-247/TO-263	P_{TOT}	160	W
Total dissipation at $T_C = 25^\circ\text{C}$ TO-3PH	P_{TOT}	62.5	W
Derating factor		2.56	W/°C
Operating junction temperature	T_J	-55 to 150	°C
Storage temperature	T_{stg}		
Maximum lead temperature for soldering purpose	T_L	300	°C

Electrical Characteristics (Tvj = 25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
On /off states						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 250\mu A, V_{GS} = 0$	1500			V
Zero gate voltage drain current ($V_{GS} = 0$)	I_{DSS}	$V_{DS} = \text{Max rating}$ $V_{DS}=\text{Max rating}, T_C=125\text{ }^{\circ}C$			10 500	μA
Gate-body leakage current ($V_{DS} = 0$)	I_{GSS}	$V_{GS} = \pm 20\text{ V}$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu A$	3	4	5	V
Static drain-source on resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 2A$	-	3.8	4.5	Ω
Dynamic						
Forward trans-conductance	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 2A$		3.5		S
Input capacitance	C_{iss}	$V_{DS}=25V, f=1MHz, V_{GS}=0$		1300		pF
Output capacitance	C_{oss}			120		
Reverse transfer capacitance	C_{rss}			12		
Gate input resistance	R_g	f=1MHz Gate DC Bias=0 Test signal level=20mV open drain		2.2		Ω
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 750\text{ V}, I_D = 3\text{ A},$ $R_G = 4.7\text{ }\Omega, V_{GS} = 10\text{ V}$		50		ns
Rise time	t_r			16		
Turn-off-delay time	$t_{d(off)}$			100		
Fall time	t_f			80		
Total gate charge	Q_g	$V_{DD}=1200V, I_D=6A$ $V_{GS}=10V$		85		nC
Gate-source charge	Q_{gs}			14		
Gate-drain charge	Q_{gd}			48		
Source drain diode						
Source-drain current	I_{SD}				6	A
Source-drain current (pulsed)	I_{SDM}				24	

Forward on voltage	V_{SD}	$I_{SD} = 6\text{ A}, V_{GS} = 0$	-	1.5	2.0	V
Reverse recovery time	t_{rr}	$I_{SD} = 6\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$ $V_{DD} = 60\text{ V}$		950		ns
Reverse recovery charge	Q_{rr}			9		μC
Reverse recovery current	I_{RRM}			20		A
Reverse recovery time	t_{rr}	$I_S = 6\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$ $V_{DD} = 60\text{ V}, T_J = 150^\circ\text{C}$		900		ns
Reverse recovery charge	Q_{rr}			8.5		μC
Reverse recovery current	I_{RRM}			19		A

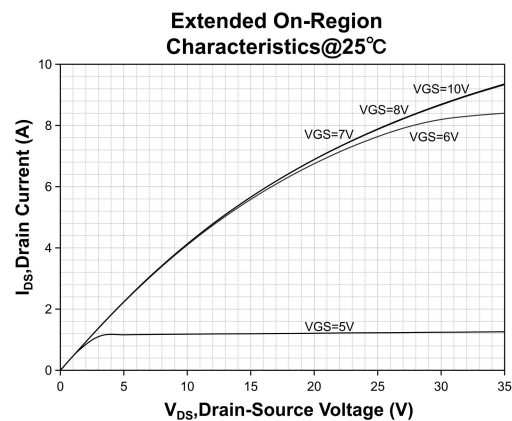
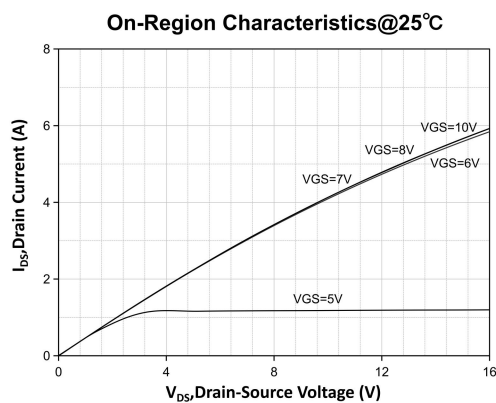
Thermal data

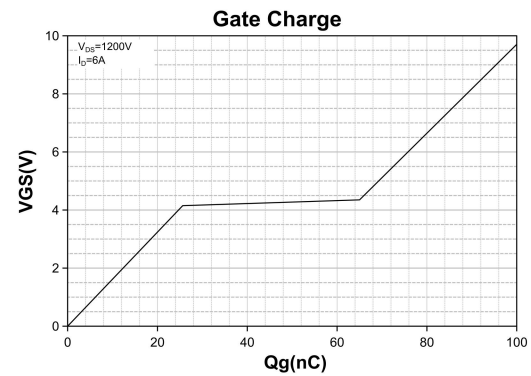
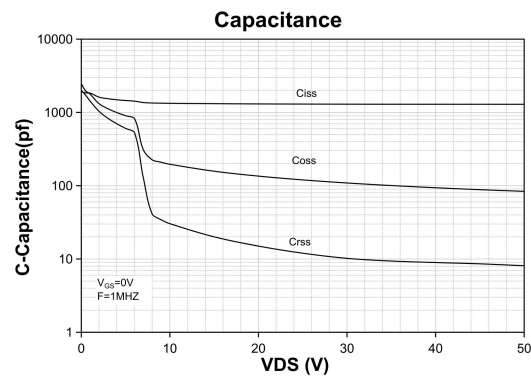
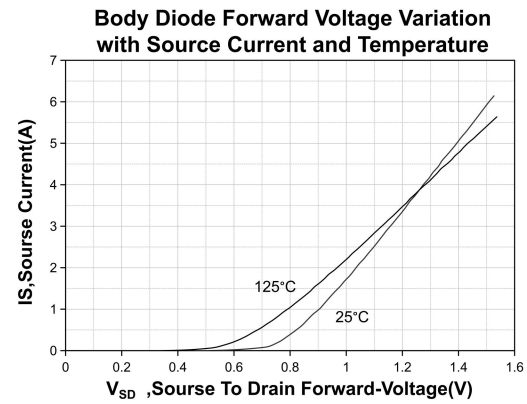
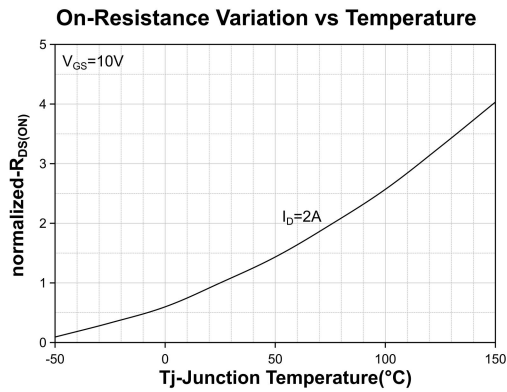
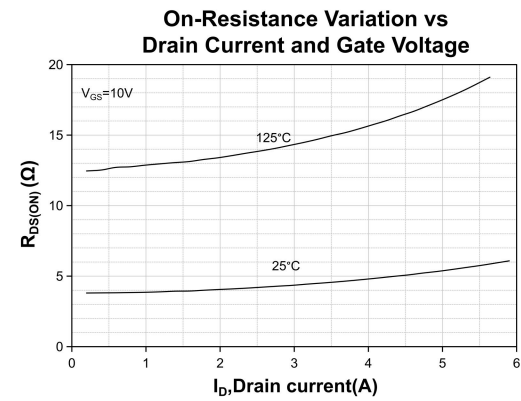
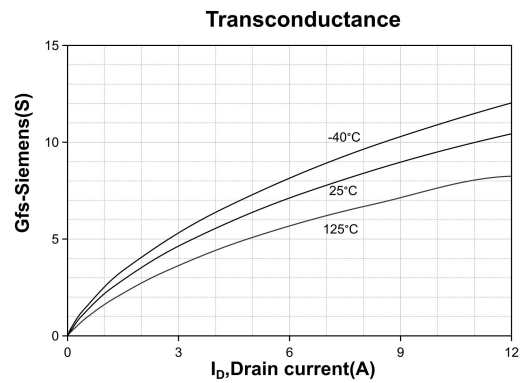
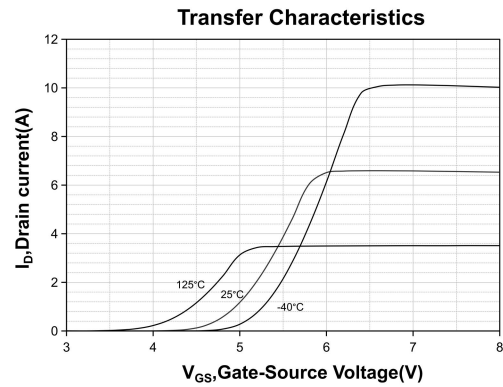
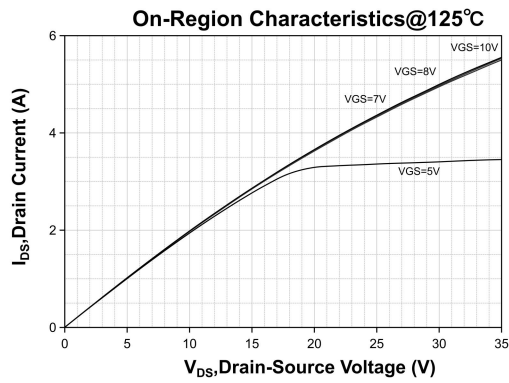
Parameter	Symbol	Value			Unit
		TO-247	TO-3PH	TO-263	
Thermal resistance junction-case max	R_{thj-c}	0.78	2	0.78	$^\circ\text{C}/\text{W}$
Thermal resistance junction-ambient max	R_{thj-a}	62.5	50	50	

Order Message

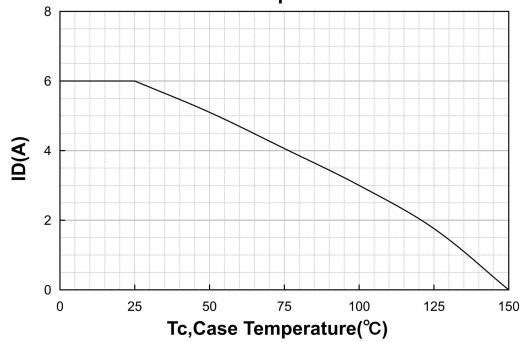
Marking	package
MS6N150HGC0	TO-247
MS6N150HGB2	TO-3PH
MS6N150HGE0	TO-263

Electrical characteristics(curves)

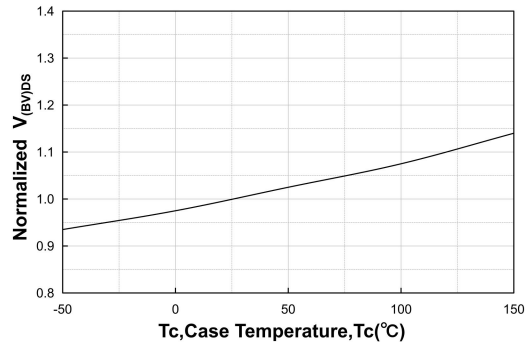




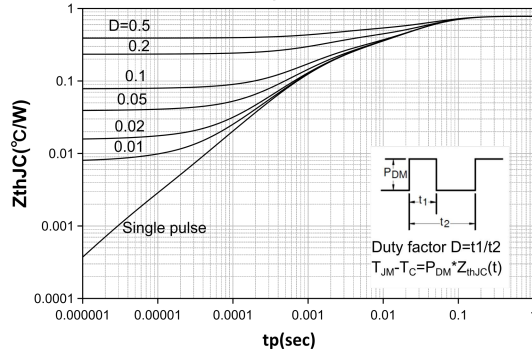
Maximum Drain Current vs Case Temperature



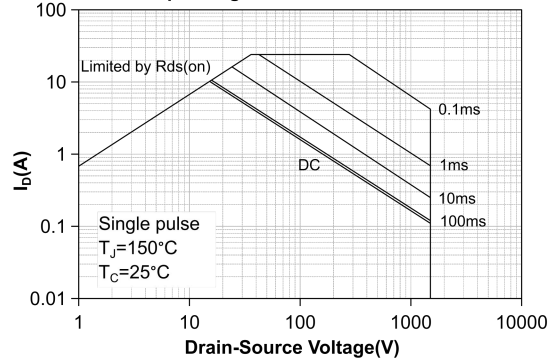
Normalized $V_{(BV)DS}$ vs temperature



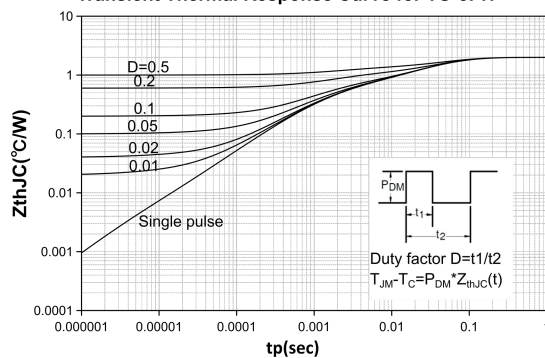
Transient Thermal Response Curve for TO-247/TO-263



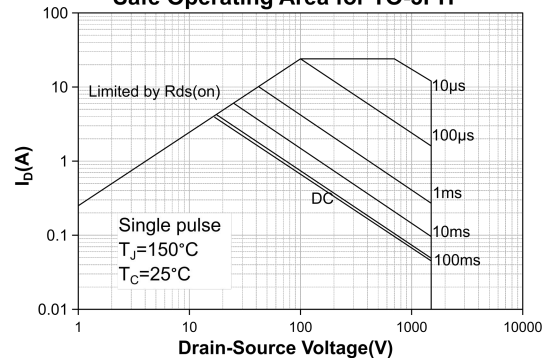
Safe Operating Area for TO-247/TO-263



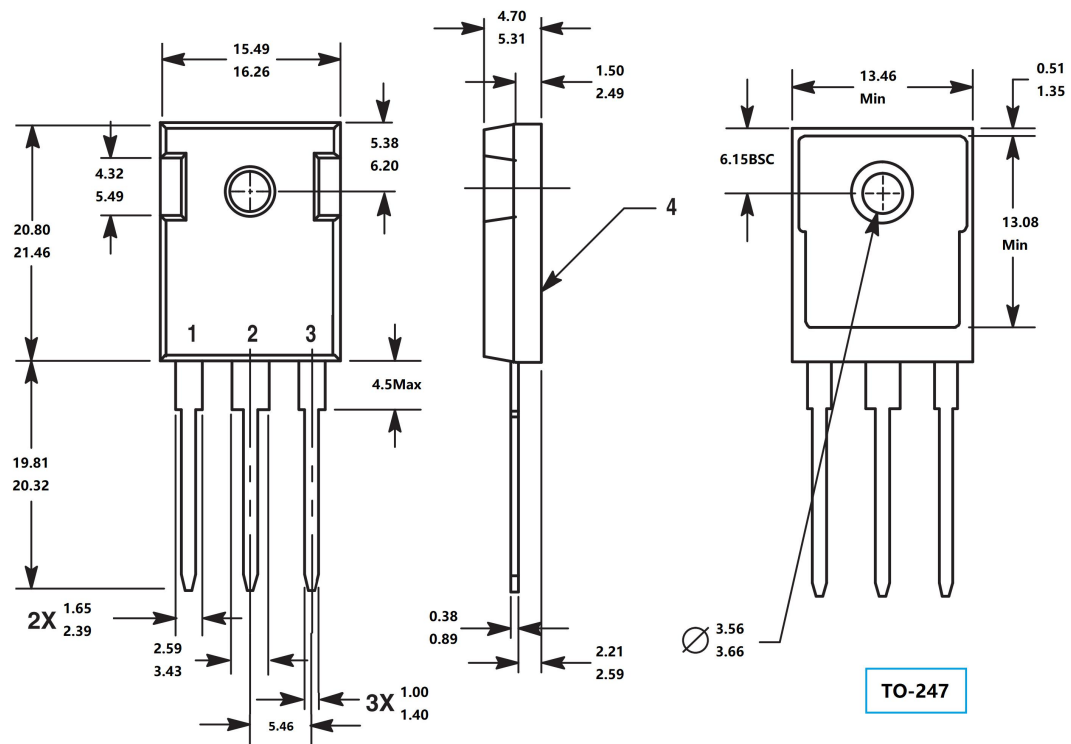
Transient Thermal Response Curve for TO-3PH

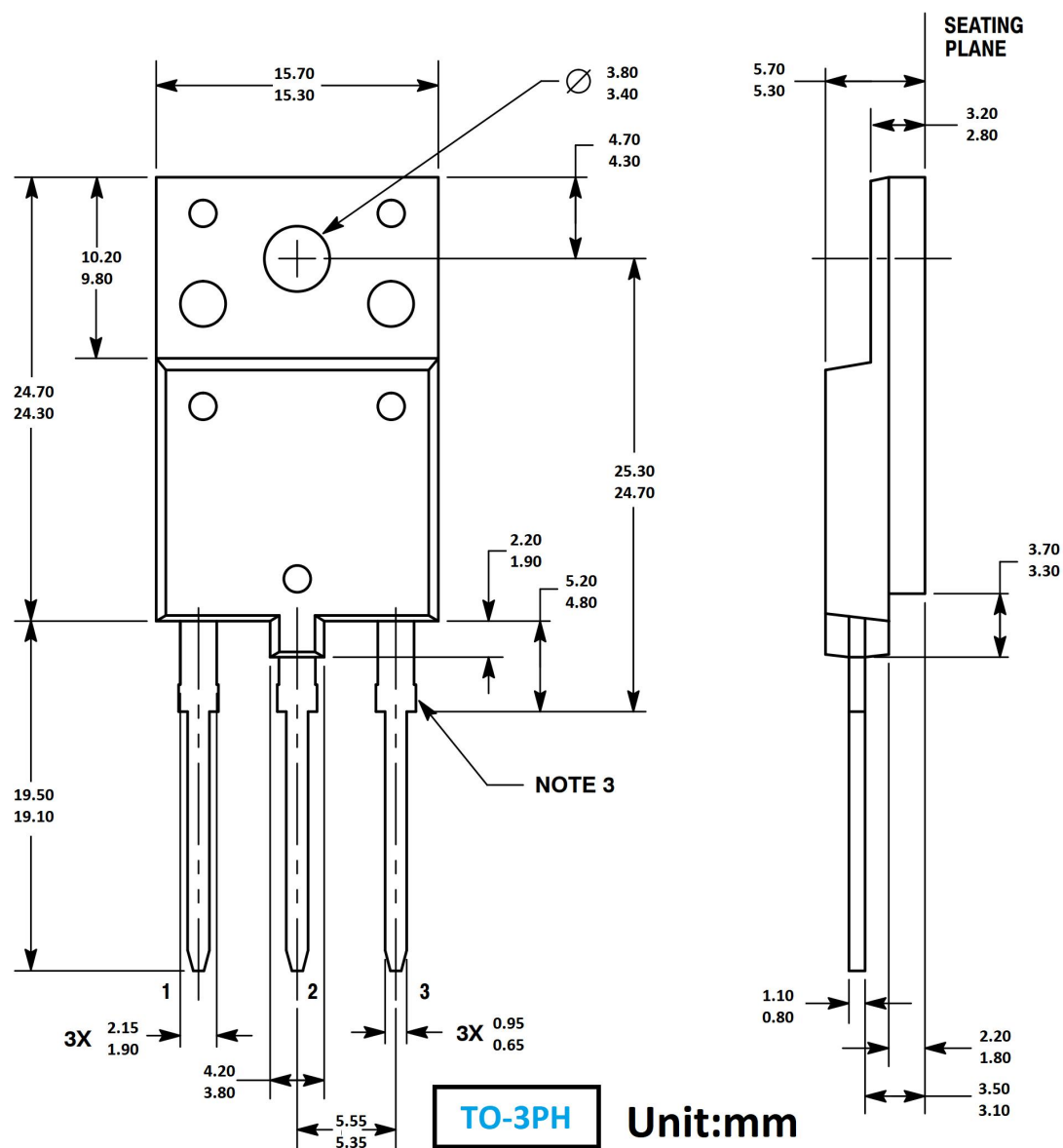


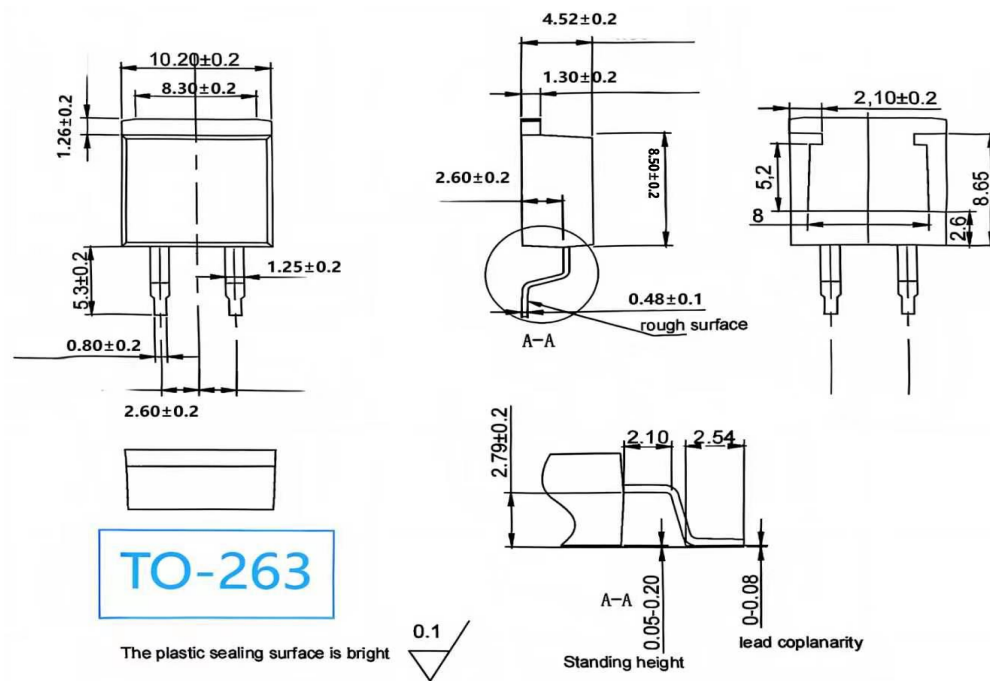
Safe Operating Area for TO-3PH



Package outline dimension







Notes:

- Notes:
1. unmarked tolerance $\pm 0.15\text{mm}$; unmarked $R < 0.15\text{mm}$
 2. The resin body is not allowed to have defects, shrinkage holes, cracks, bubbles and other harmful defects
 3. The drawing indicates that the leg has reinforcement
 4. The top pinhole is not allowed to protrude the surface of the plastic sealing body
 5. Unit: mm