

■ PRODUCT CHARACTERISTICS

VDSS	1500V
$R_{DS(on)}$ Typ(@V _{GS} =10 V)	5.4Ω
Qg@type	36nC
ID	3A

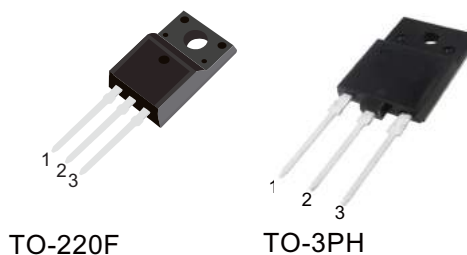
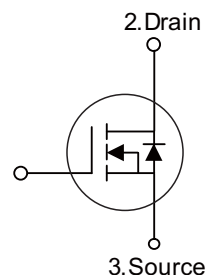
■ APPLICATIONS

- * Adaptor
- * Charger
- * SMPS Standby Power

■ FEATURES

- *RoHS Compliant
- *RDS(ON).typ.=5.4 Ω@V_{GS}=10V
- *Low Gate Charge Minimize Switching Loss
- *Fast Recovery Body Diode

Symbol



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3N150F	TO-220F	50 pieces/Tube
N/A	MOT3N150V	TO-3PH	30 pieces/Tube

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}	1500	V
Gate-to-Source Voltage	V _{GSS}	±30	
Continuous Drain Current	I _D	3	A
Pulsed Drain Current at V _{GS} =10V	I _{DM}	12	
Single Pulse Avalanche Energy, L=30mH	E _{AS}	500	mJ
Power Dissipation	TO-220F	35	W
	TO-3PH	90	
Derating Factor above 25°C	TO-220F	0.28	W/°C
	TO-3PH	0.72	
Soldering Temperature Distance of 1.6mm from case for 10 seconds	T _L	300	°C
Operating and Storage Temperature Range	T _J & T _{STG}	-55 to 150	

■ THERMAL DATA

Parameter	Symbol	Ratings	Unit
Junction-to-Case	R _{θJC}	3.57	°C/W
		1.38	
Junction-to-Ambient	R _{θJA}	100	
		50	

■ ELECTRICAL CHARACTERISTICS ($T_c=25^\circ\text{C}$, unless otherwise noted)

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	1500	-	-	V
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} =1500V, V _{GS} =0V	-	-	1	uA
		V _{DS} =1200V, V _{GS} =0V, T _J =125℃	-	-	500	
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =+30V, V _{DS} =0V	-	-	+100	nA
		V _{GS} =-30V, V _{DS} =0V	-	-	-100	
On characteristics						
Static Drain-to-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =2.0A	-	5.4	8.2	Ω
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250uA	2.5	-	4.5	V
Forward Transconductance	g _{fs}	V _{DS} =15V, ID=3A	-	3	-	S
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz	-	1600	-	pF
Reverse Transfer Capacitance	C _{rss}		-	33	-	
Output Capacitance	C _{oss}		-	100	-	
Gate input resistance	Rg	f=1 MHz Gate DC Bias=0 Test signal level=20mV open drain	-	4.5	-	Ω
Total Gate Charge	Q _g	V _{DD} =750V, I _D =3A, V _{GS} =0 to 10V	-	36	-	nC
Gate-to-Source Charge	Q _{gs}		-	9.5	-	
Gate-to-Drain (Miller) Charge	Q _{gd}		-	12	-	
Resistive switching characteristics						
Turn-on Delay Time	td(ON)	V _{DD} =750V, I _D =3A, V _{GS} =10V Rg=4.7Ω	-	25	-	nS
Rise Time	trise		-	48	-	
Turn-Off Delay Time	td(OFF)		-	57	-	
Fall Time	tfall		-	52	-	
Source drain body diode characteristics						
Continuous Source Current	I _{SD}	Integral pn-diode in MOSFET	-	-	3	A
Pulsed Source Current	I _{SM}		-	-	12	
Diode Forward Voltage	V _{SD}	I _S =3A, V _{GS} =0V	-	-	1.5	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V	-	255	-	uS
Reverse Recovery Charge	Q _{rr}	I _F =3A, di/dt=100A/μs	-	1.1	-	uC

■ TYPICAL CHARACTERISTICS

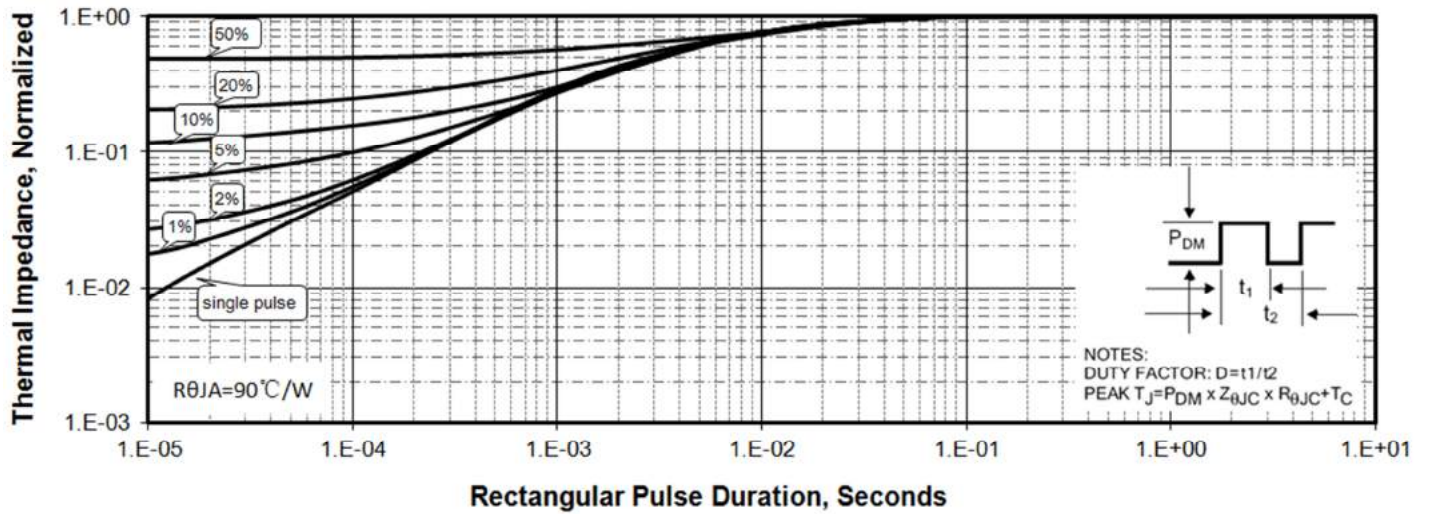


Figure 2 . Max. Power Dissipation vs Case Temperature

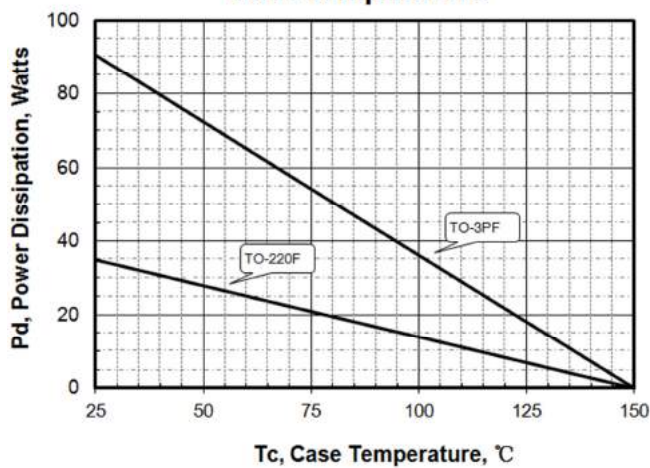


Figure 3 .Maximum Continuous Drain Current vs T_c

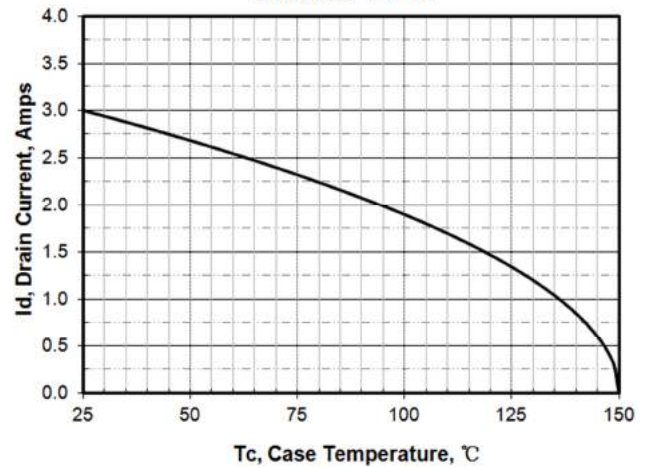


Figure 4. Output Characteristics

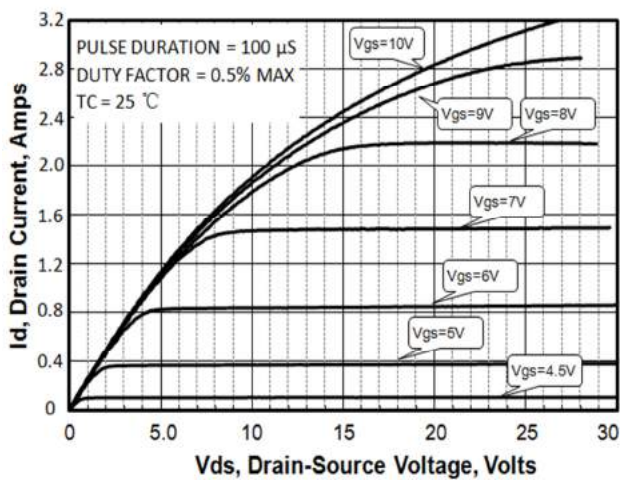
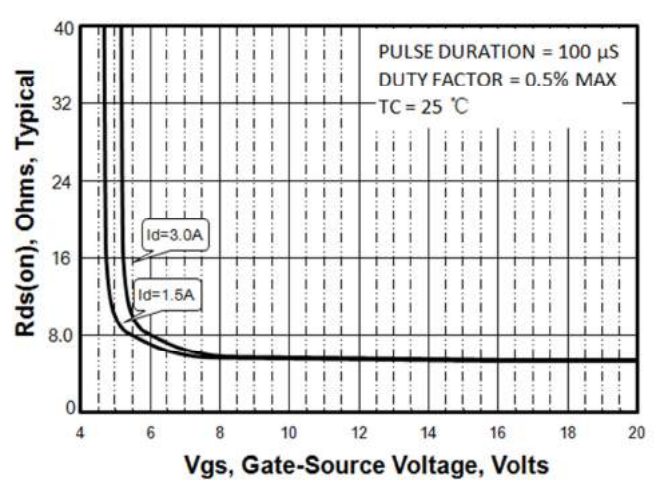


Figure 5. $R_{ds(on)}$ vs Gate Voltage



■ TYPICAL CHARACTERISTICS(Cont.)

Figure 6. Peak Current Capability

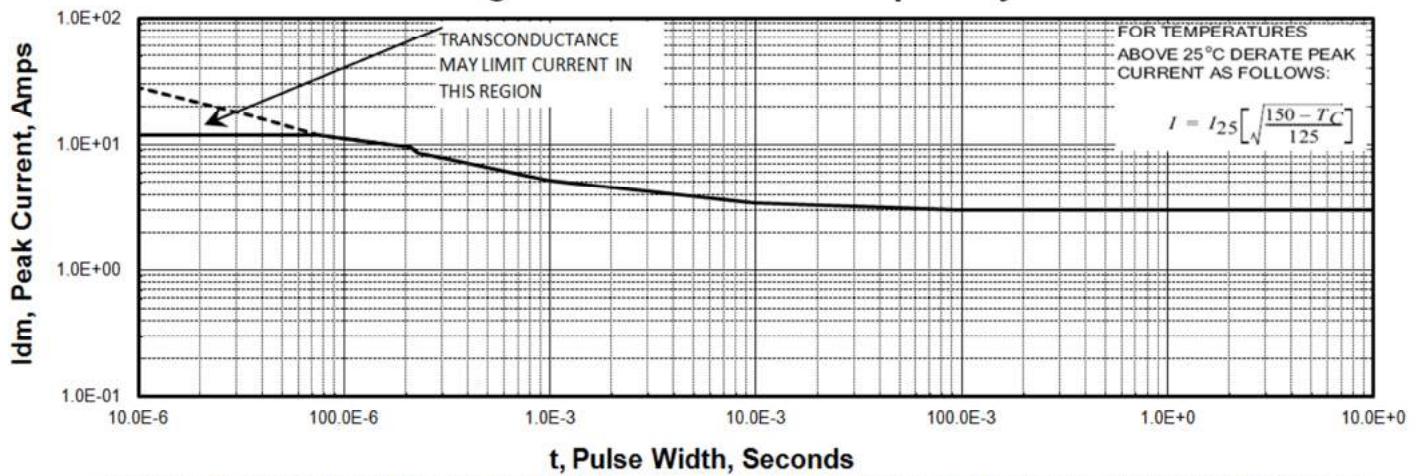


Figure 7. Transfer Characteristics

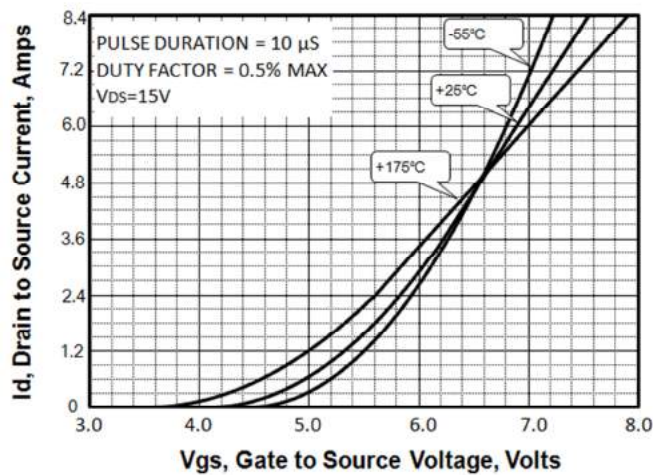


Figure 8. Unclamped Inductive Switching Capability

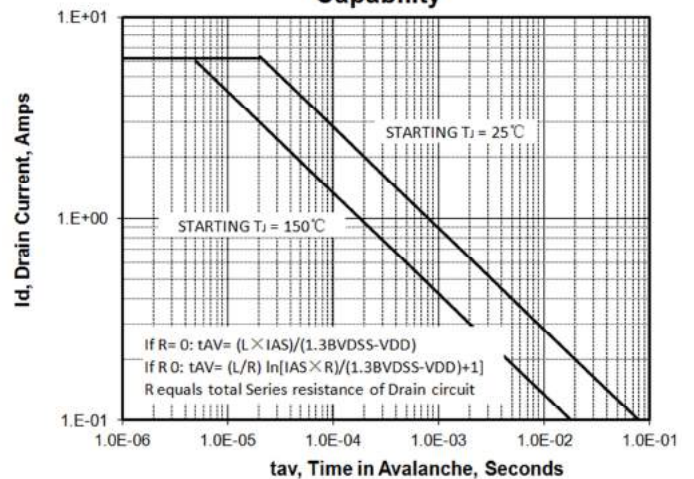


Figure 9. Drain to Source ON Resistance vs Drain Current

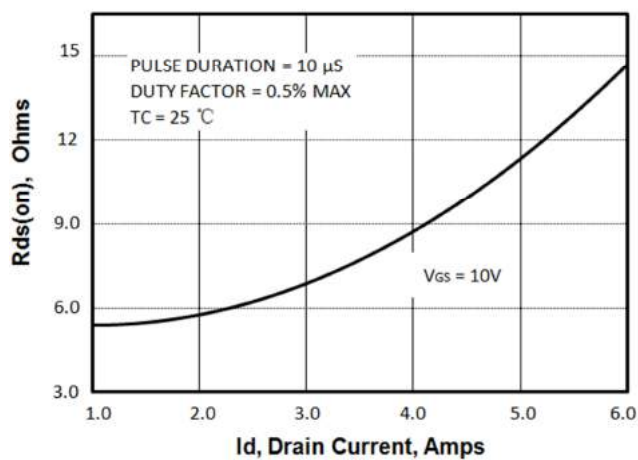
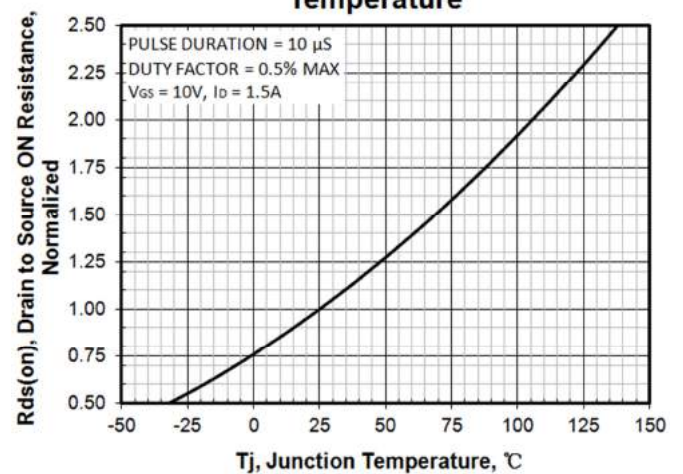


Figure 10. Rds(on) vs Junction Temperature



■ TYPICAL CHARACTERISTICS(Cont.)

Figure 11. Breakdown Voltage vs Temperature

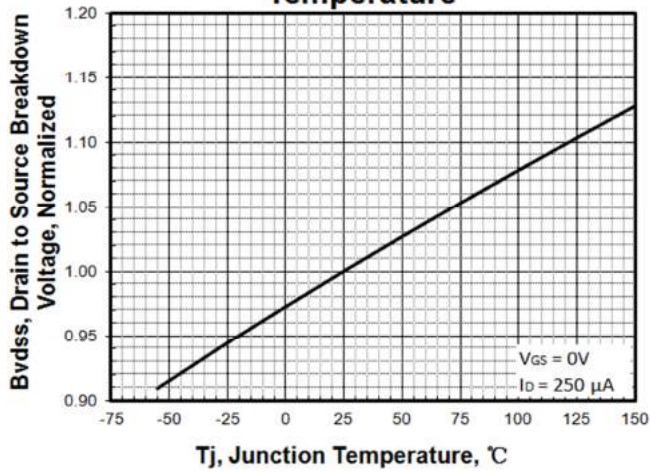


Figure 12. Threshold Voltage vs Temperature

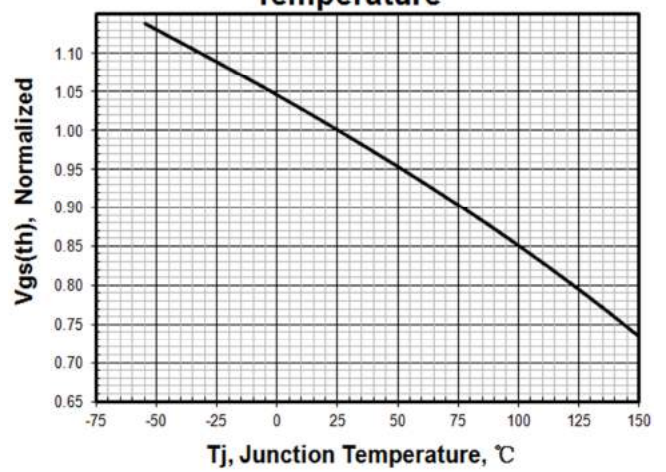


Figure 13 . Maximum Safe Operating Area(TO-3PF)

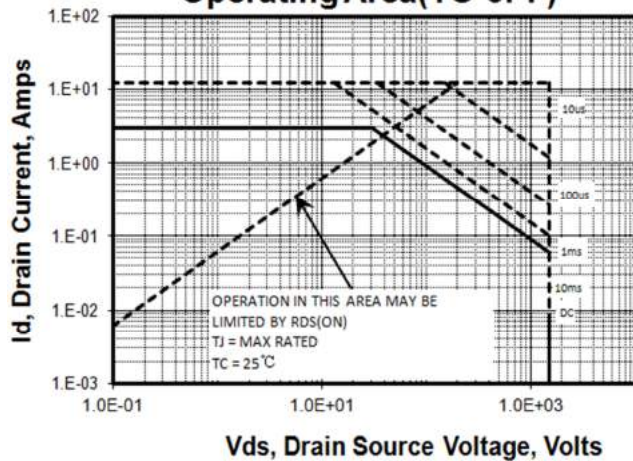


Figure 14 . Maximum Safe Operating Area(TO-220F)

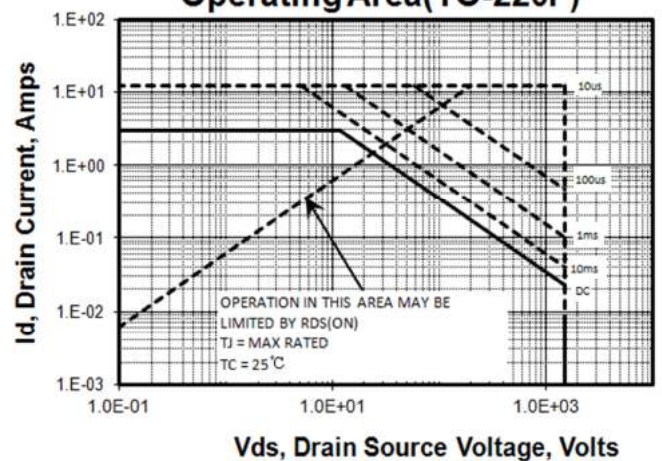


Figure 15. Capacitance vs Vds

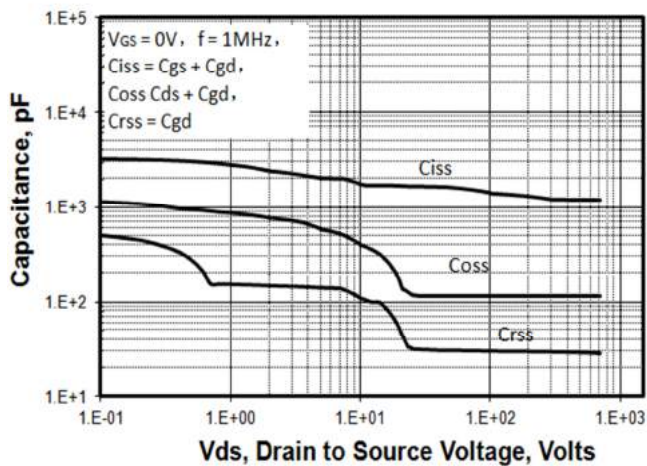
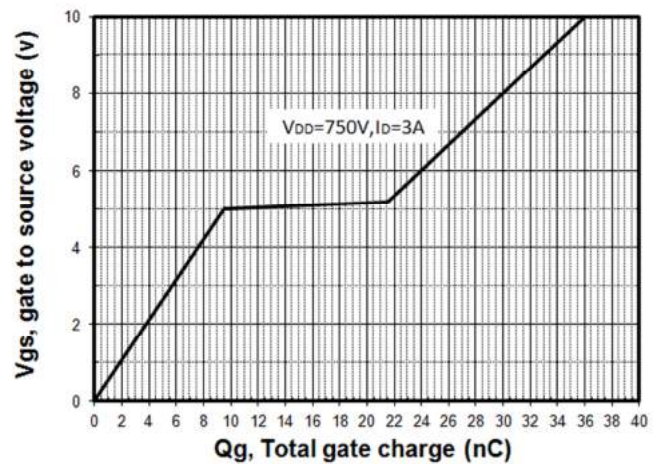


Figure 16 . Typical Gate Charge



[illegible]

Technical drawing of a mechanical part, showing front and side views with dimensions.

Front View Dimensions:

- Overall width: 15.35 ± 0.1
- Distance between top holes: 9.90
- Top hole diameter: 4.50
- Distance from top edge to center of top hole: 2.50
- Distance from top edge to center of bottom hole: 0.00
- Distance from top edge to center of side hole: 2.00
- Distance from top edge to center of bottom hole: 6.43
- Distance from top edge to center of side hole: 7.44
- Distance from top edge to center of bottom hole: 0.02
- Distance between bottom holes: 13.82
- Radius of bottom hole: $R1.5$
- Distance from bottom edge to center of bottom hole: 18.11
- Distance from bottom edge to center of side hole: 19.10
- Distance from bottom edge to center of bottom hole: 19.90
- Distance from bottom edge to center of side hole: 4.0
- Distance from bottom edge to center of bottom hole: 2.16
- Distance from bottom edge to center of side hole: $R0.10$
- Overall height: 26.45 ± 0.15
- Distance from bottom edge to center of bottom hole: 2.05 ± 0.15

Side View Dimensions:

- Overall width: 5.50 ± 0.1
- Distance between top holes: 3.05 ± 0.1
- Distance between top holes: 2.00 ± 0.1
- Distance between top holes: 1.15
- Top hole diameter: $\phi 3.7 \pm 0.1$
- Distance from top edge to center of top hole: 10.0°
- Distance from top edge to center of bottom hole: 2°
- Distance from top edge to center of side hole: 10.0°
- Distance from top edge to center of bottom hole: 9.96
- Distance from top edge to center of side hole: 23 ± 0.15
- Distance from top edge to center of bottom hole: 26.45 ± 0.15
- Distance from top edge to center of side hole: 10.0°
- Distance from top edge to center of bottom hole: 5.0°
- Distance from top edge to center of side hole: $R0.10$
- Distance from top edge to center of bottom hole: 5.0°
- Distance from top edge to center of side hole: 5.0°
- Distance from top edge to center of bottom hole: 3.50
- Distance from top edge to center of side hole: 0.90
- Distance from top edge to center of bottom hole: 3.3 ± 0.1