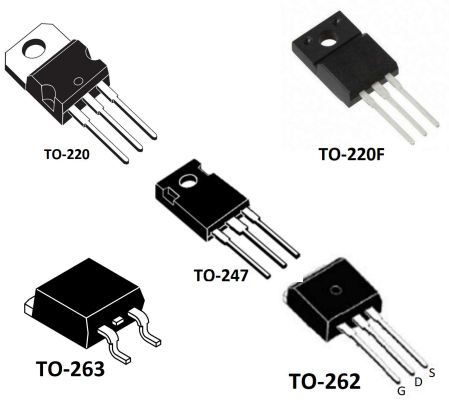
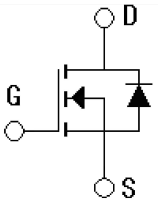
Features

- Low gate charge
- Low C_{rss} (typ 9pF)
- Fast switchin
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product



Applications

- High frequency switching mode power supply
- Electronic ballast
- UPS



Absolute Ratings (Tc=25℃)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	1000	V
Drain Current-continuous	I_D T=25℃	8	A
	T=100℃	5	A
Drain Current-pulse (note 1)	I_{DM}	32*	A
Gate-Source Voltage	V_{GS}	±30	V
Single pulse avalanche energy(note 2)	E_{AS}	650	mJ
Avalanche Current（note 1）	I_{AR}	8	A
Repetitive Avalanche Energy(note 1)	E_{AR}	393	mJ
Power Dissipation (TO-220\TO-247)	PD TC=25℃	167	W
	Derate above 25℃	1.43	W/℃
Power Dissipation (TO-263\TO-262)	PD TC=25℃	83	W
	Derate above 25℃	0.34	W/℃
Power Dissipation (TO-220F)	PD TC=25℃	31.7	W
	Derate above 25℃	0.25	W/℃
Operating and Storage Temperature Range	T_J,T_{STG}	-55~+150	℃

Peak Diode Recovery dv/dt（note 3）	dv/dt	4.5	V/ns
Maximum Lead Temperature for Soldering Purposes	T_L	300	℃

*Drain current limited by maximum junction temperature

Electrical Characteristics(T_{CASE}=25℃ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Drain-Source Voltage	BV_{DSS}	I_D=250μA,V_{GS}=0V	1000	-	-	V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta TJ$	I_D=250μA,referenced to 25℃	-	1.05	-	V/℃
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=1000V,V_{GS}=0V，T_C=25℃	-	-	1	μA
		V_{DS}=800V,T_C =125℃	-	-	10	μA
Gate body leakage current	I_{GSS}	V_{DS}=0V,V_{GS}=±30V	-	-	±100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	3.0	-	5.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=4A	-	1.8	2.3	Ω
Forward Transconductance	g_{FS}	V_{DS}=40V,I_D=4A (note 4)	-	5.6	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1.0MHZ	-	687	-	pF
Output capacitance	C_{oss}		-	67	-	pF
Reverse transfer capacitance	C_{rss}		-	12	-	pF

Electrical Characteristics(T_{CASE}=25℃ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Switching-Characteristics						
Turn-On delay time	$t_{d(on)}$	V_{DD}=500V,I_D=8A, R_{GEN}=25Ω (note 4,5)	-	13	-	ns
Turn-On rise time	t_r		-	22	-	ns
Turn-Off delay time	$t_{d(Off)}$		-	63	-	ns
Turn-Off rise time	t_f		-	19	-	ns

Total Gate Charge	Q_g	V_{DS}=750V,I_D=4A, V_{GS}=10V (note 4,5)	-	14	-	nC
Gate-Source charge	Q_{gs}		-	4	-	nC
Gate-Drain charge	Q_{gd}		-	5	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage (note 3)	V_{SD}	V_{GS}=0V,I_S=8A	-	-	1.4	V
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	-	-	-	24	A
Maximum Continuous Drain Source Diode Forward Current	I_S	-	-	-	8	A
Reverse recovery time	t_{rr}	V_{GS}=0V, I_S=4A dI_F/dt=100A/μs Tc=25℃ (note 4)	-	159	-	ns
Reverse recovery charge	Q_{rr}		-	693	-	nC
Reverse recovery time	t_{rr}	V_{GS}=0V, I_S=3A dI_F/dt=100A/μs Tc=100℃ (note 4)	-	153	-	ns
Reverse recovery charge	Q_{rr}		-	685	-	nC

Thermal Characteristic

Parameter	Symbol	Value			Unit
		TO-220/ TO-247	TO-263/ TO-262	TO-220F	
Thermal Resistance, junction to Case	R_{th}(j-C)	0.78	3	3.94	℃/W
Thermal Resistance, Junction to Ambient	R_{th}(j-A)	62.5	65	80	℃/W

Order Message

Marking	Package
SL8N100K	TO-263
SL8N100H	TO-262
SL8N100F	TO-220F
SL8N100	TO-220
SL8N100T	TO-247

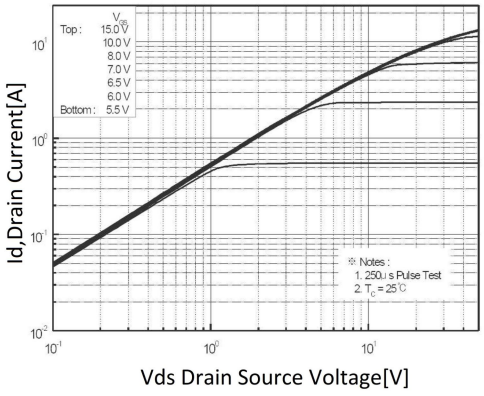
Notes:

1. Pulse width limited by maximum junction temperature
2. L=33.0mH, I_{AS}=8A, V_{DD}=50V, R_G=25 Ω,Starting T_J=25℃
3. I_{SD} ≤8A,di/dt ≤200A/μs,V_{DD}≤BV_{DSS}, Starting T_J=25℃
4. Pulse Test：Pulse Width ≤300μs,Duty Cycle≤2%

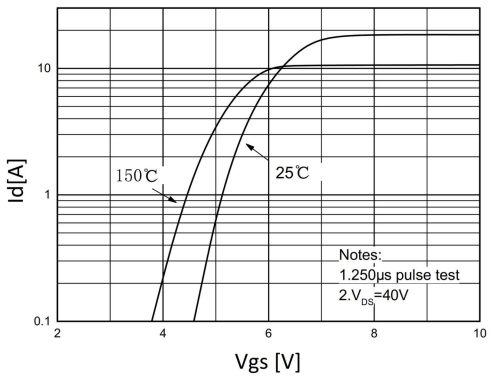
5. Essentially independent of operating temperature

ELECTRICAL CHARACTERISTICS (curves)

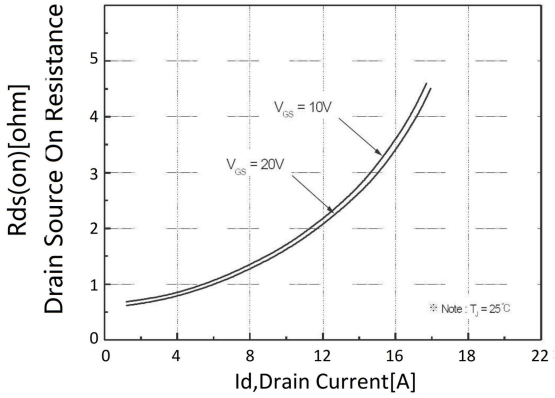
On-Region Characteristics



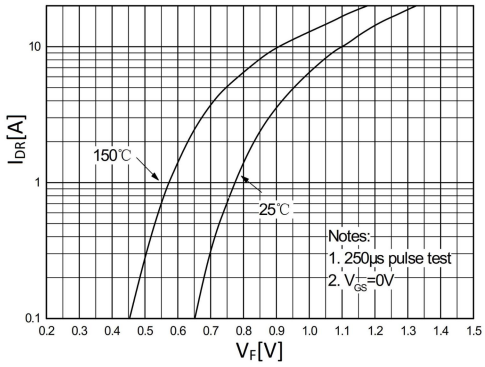
Transfer Characteristics



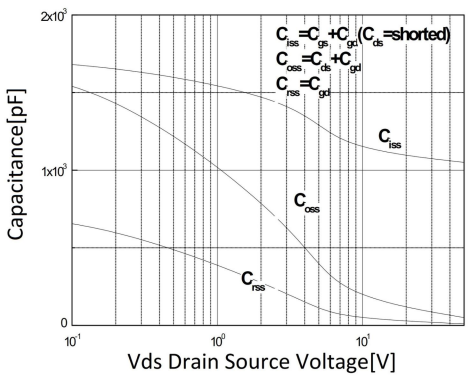
On-Resistance Variation vs. Drain Current and Gate Voltage



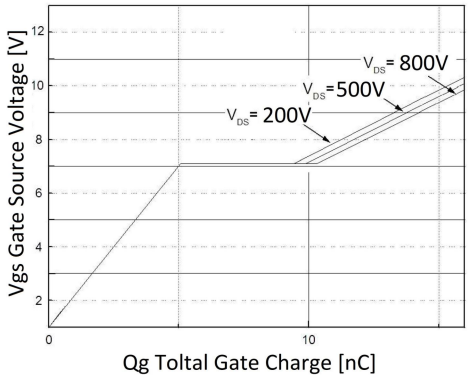
Body Diode Forward Voltage Variation vs. Source Current and Temperature



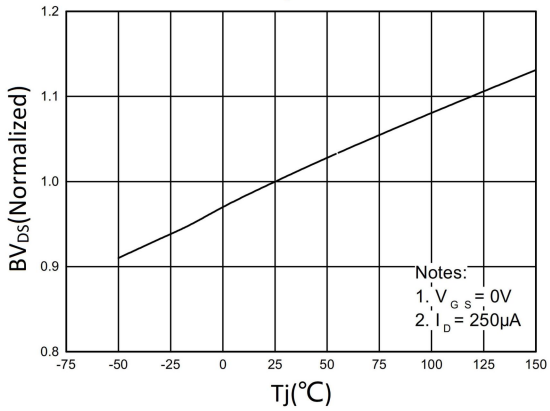
Capacitance Characteristics



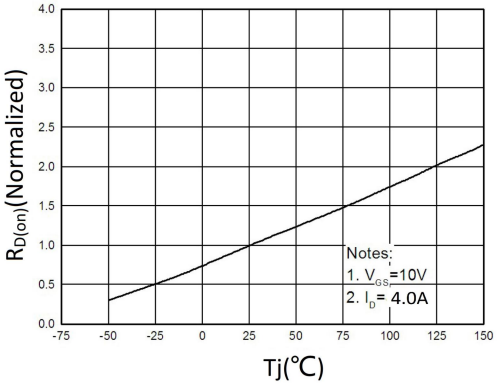
Gate Charge Characteristics



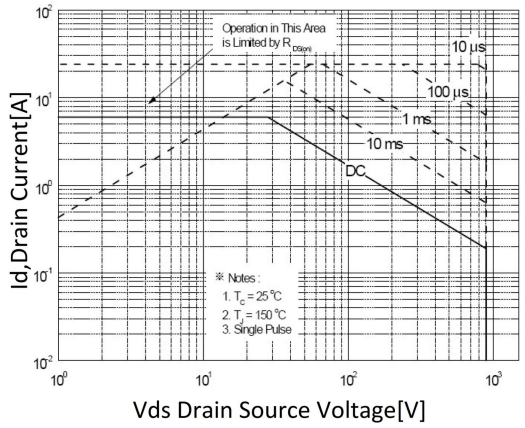
Breakdown Voltage Variation vs. Temperature



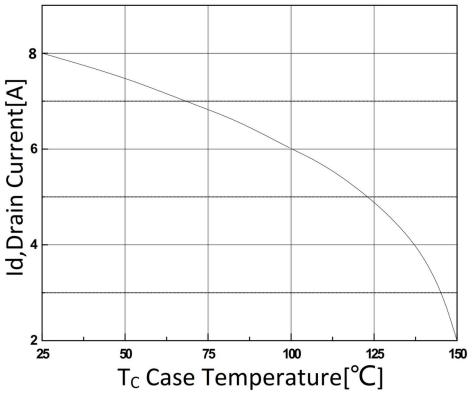
On-Resistance Variation vs. Temperature



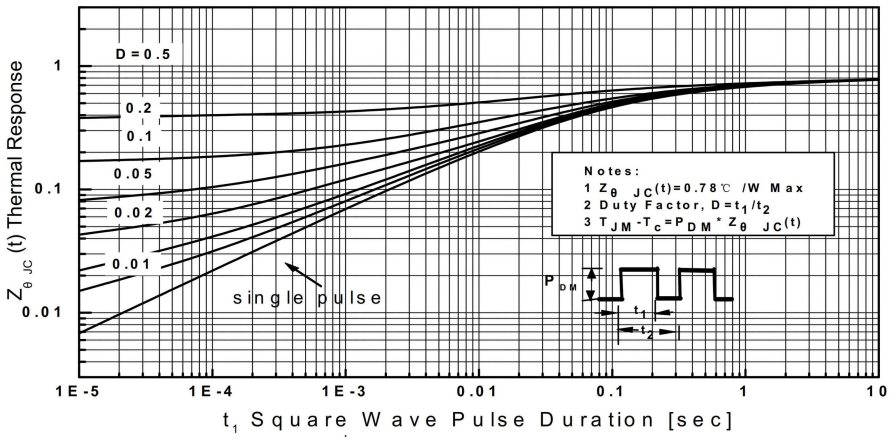
Maximum Safe Operating Area



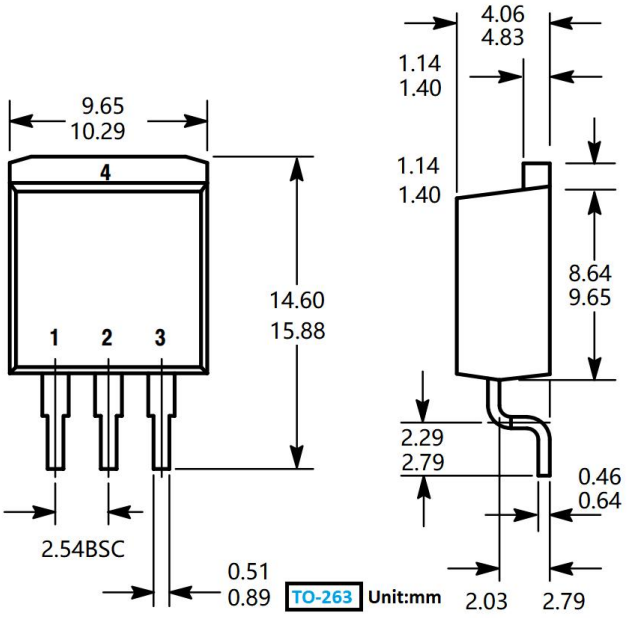
Maximum Drain Current vs. Case Temperature

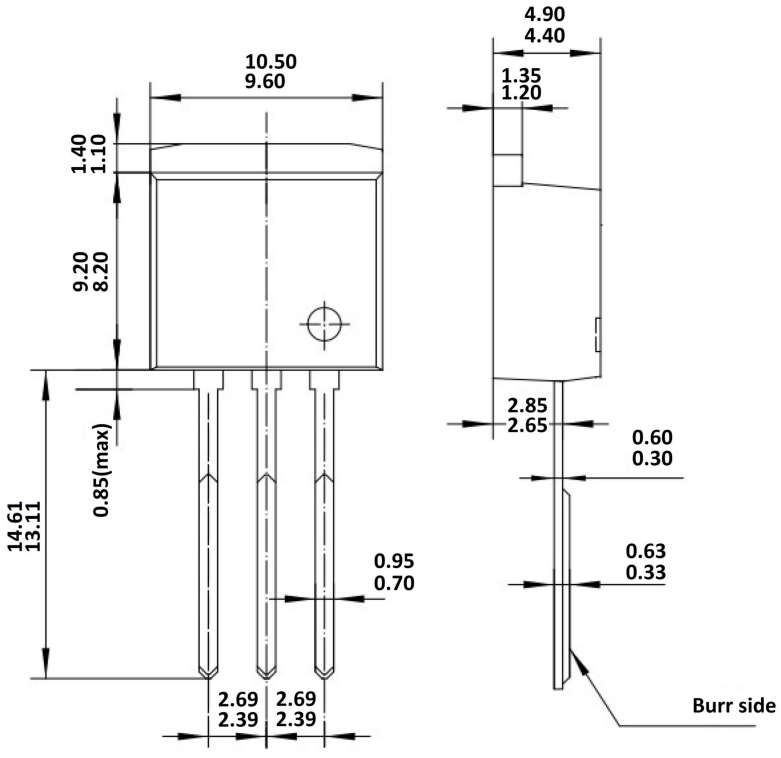


Transient Thermal Response Curve

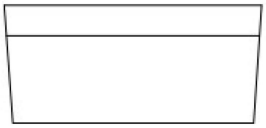


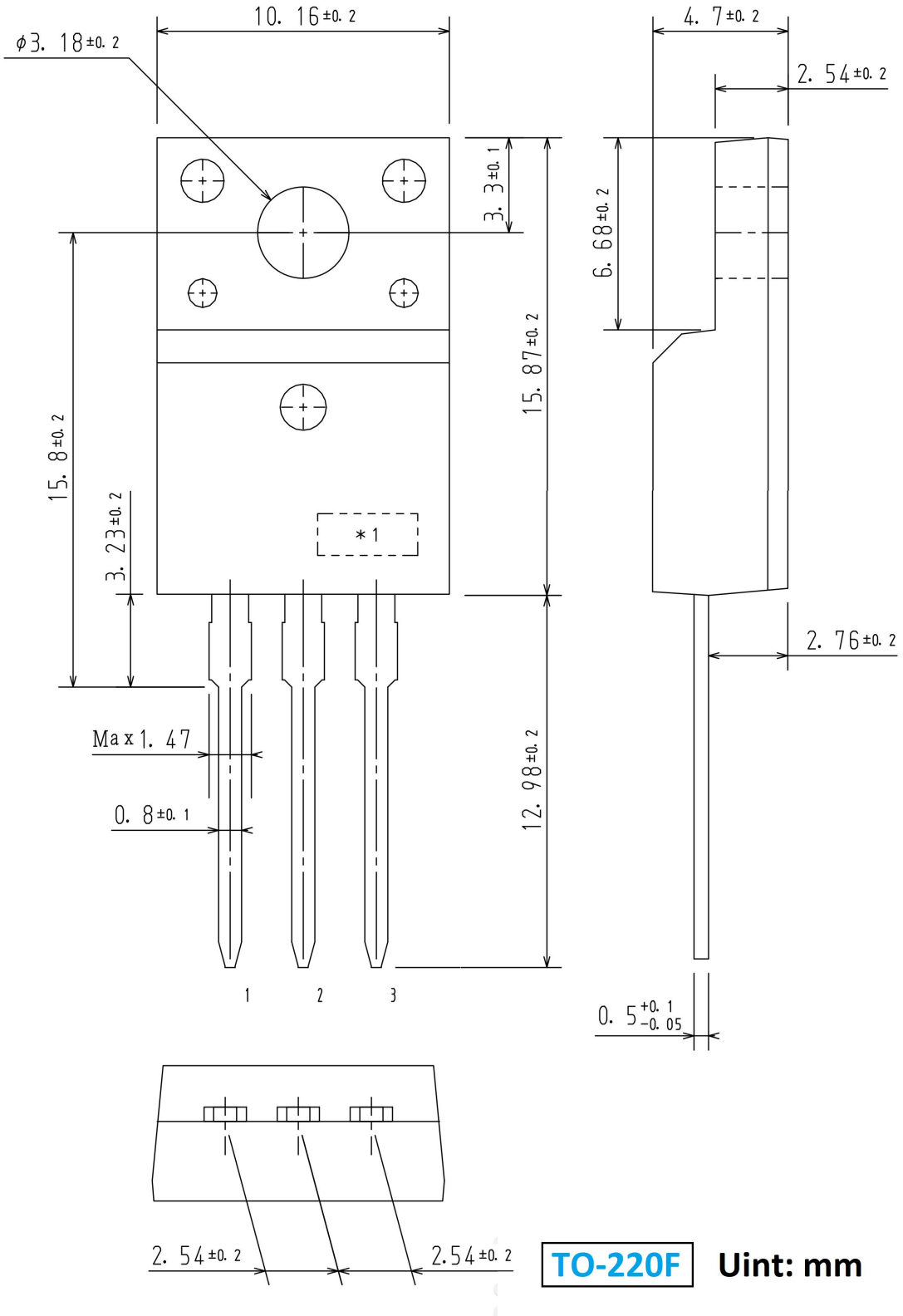
PACKAGE MECHANICAL DATA



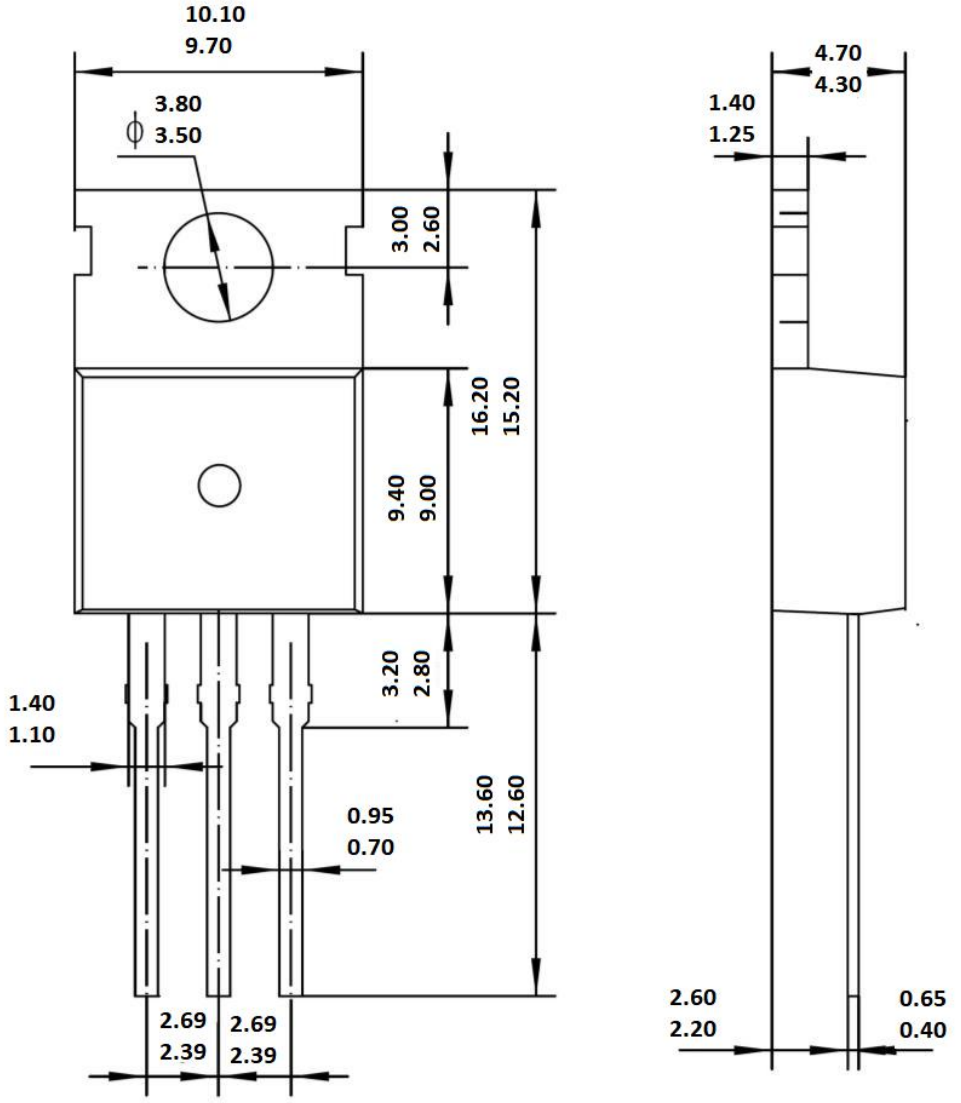


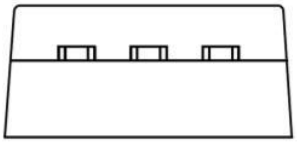
TO-262 Unit:mm





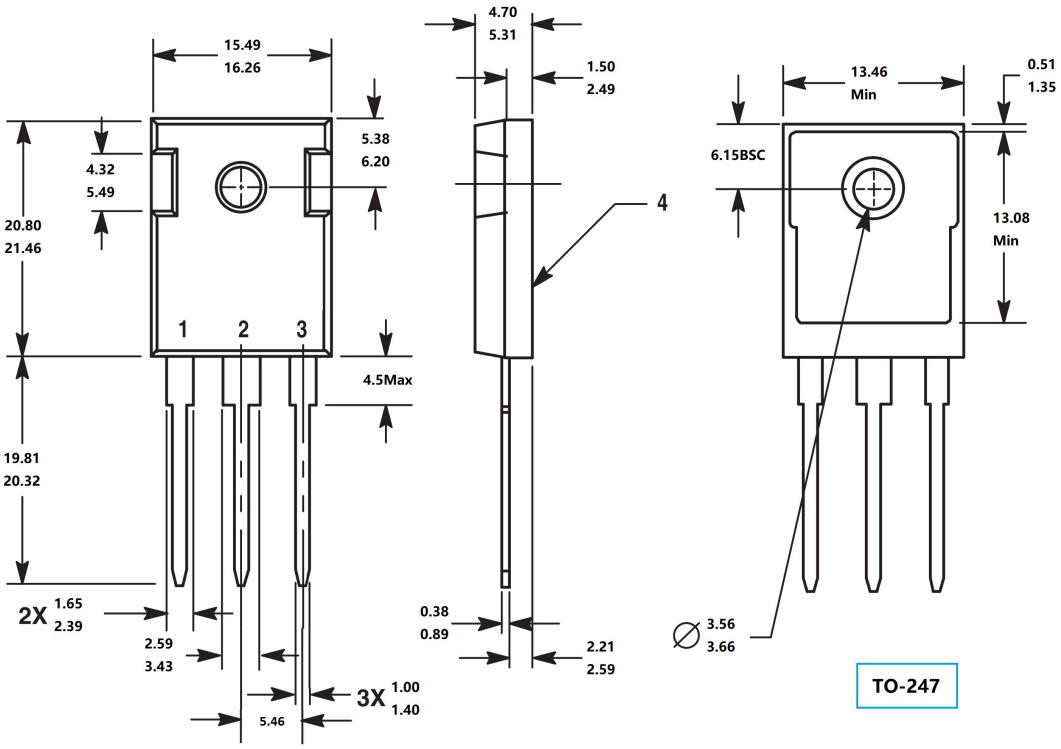
TO-220F **Uint: mm**





TO-220

Unit: mm


15.49
16.26
5.38
6.20
4.32
5.49
20.80
21.46
1
2
3
4.5Max
19.81
20.32
2X 1.65
2.39
2.59
3.43
3X 1.00
1.40
5.46
4.70
5.31
1.50
2.49
4
0.38
0.89
2.21
2.59
13.46
Min
0.51
1.35
6.15BSC
13.08
Min
3.56
3.66
TO-247

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