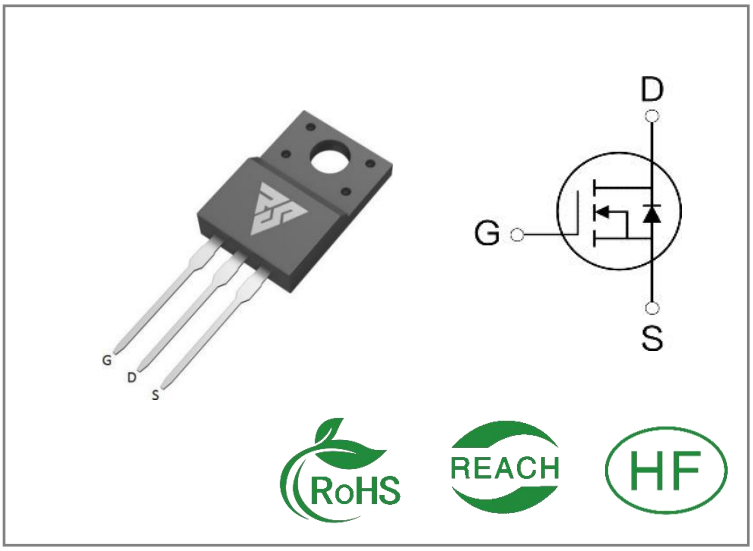
ID	R_{DS}(ON)(Typ)	VDSS
15A	0.35Ω	500V



Applications:

- Switch Mode Power Supply(SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)

Features:

- Fast switching speed
- 100% avalanche tested
- Improved dv/dt capability

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RS15N50F	T0-220F	RS15N50F	Tube	50 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS15N50F	Units
VDSS	Drain-to-Source Voltage	500	V
ID	Continuous Drain Current TC=25℃	15	A
	Continuous Drain Current TC=100℃	8.6	
IDM	Pulsed Drain Current (Note*1)	60	
PD	Power Dissipation	70	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Engergy L = 10mH, VDD = 50V, RG = 25 Ω	980	mJ
TL TPKG	Maximum Temperature for Soldering	300	℃
	Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds	260	
TJ and TSTG	Operating Junction and Storage Temperature Range	-55 to 150	

* Drain Current Limited by Maximum Junction Temperature

Caution: Stresses greater than those listed in the“ Absolute Maximum Ratings” Table may cause permanent damage to the device.

Thermal Resistance

Symbol	Parameter	RS15N50F	Units	Test Conditions
RθJC	Junction-to-Case	1.78	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃
RθJA	Junction-to- Ambient	60		1 cubic foot chamber,free air.

OFF Characteristics TJ= 25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	500	--	--	V	VGS=0V,ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=500V,VGS=0 V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	VGS=30V ,VDS=0V
	Gate- to- Source Reverse Leakage	--	--	-100		VGS=-30V ,VDS=0 V

ON Characteristics TJ=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain- to- Source On-Resistance(Note*2)	--	0.35	0.42	Ω	VGS=10V,ID=7.5A
VGS(TH)	Gate Threshold Voltage	2	--	4	V	VGS=VDS,ID=250μA

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn- on Delay Time	--	34	--	nS	VDS=250V ID=15A RG=25Ω
trise	Rise Time	--	11	--		
td(OFF)	Turn- OFF Delay Time	--	95	--		
tfall	Fall Time	--	28	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	1755	--	pF	VGS=0V VDS=25V f=1.0MHz
Coss	Output Capacitance	--	183	--		
Crss	Reverse Transfer Capacitance	--	11	--		
Qg	Total Gate Charge	--	44.3	--	nC	VDS=400V ID=15A VGS=10V
Qgs	Gate- to- Source Charge	--	8.5	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	19.6	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	15	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	60	A	
VSD	Diode Forward Voltage	--	--	1.4	V	IS=7.5A,VGS=0V
trr	Reverse Recovery Time	--	389	--	nS	VGS=0V IS=15A,di/dt=100A /μs
Qrr	Reverse Recovery Charge	--	4.8	--	μC	

Notes:

* 1. Repetitive rating,pulse width limited by maximum junction temperature.
* 2. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%

Typical Feature Curve

Figure 1. Output Characteristics (TJ = 25°C)

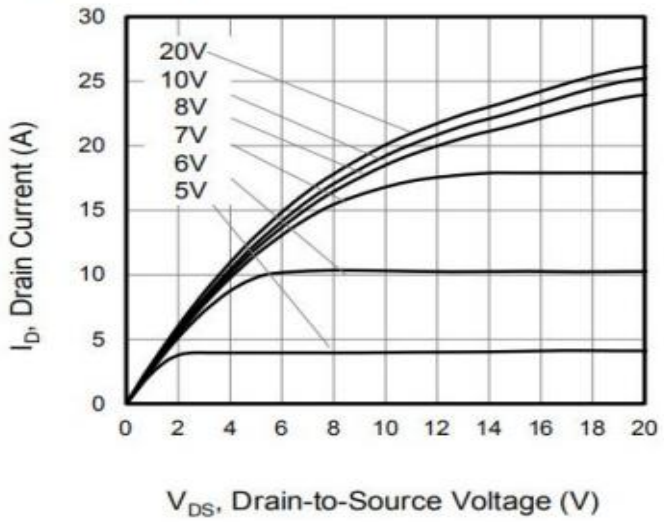


Figure 2. On-Resistance vs. Drain

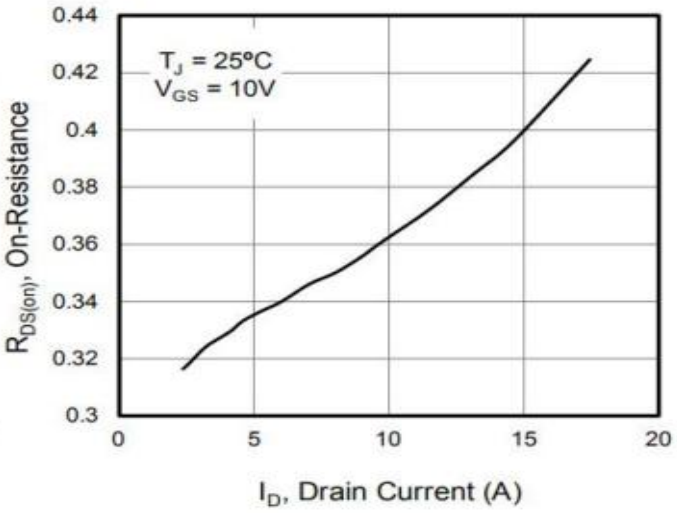


Figure 3. Body Diode Forward Voltage

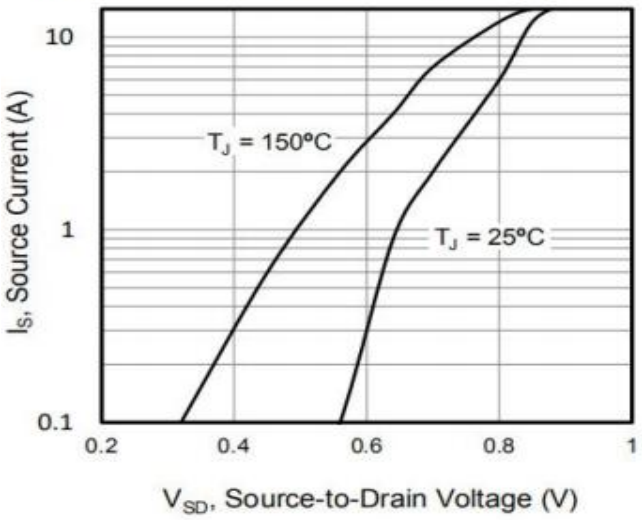


Figure 4. BVDSS Variation vs. Temperature

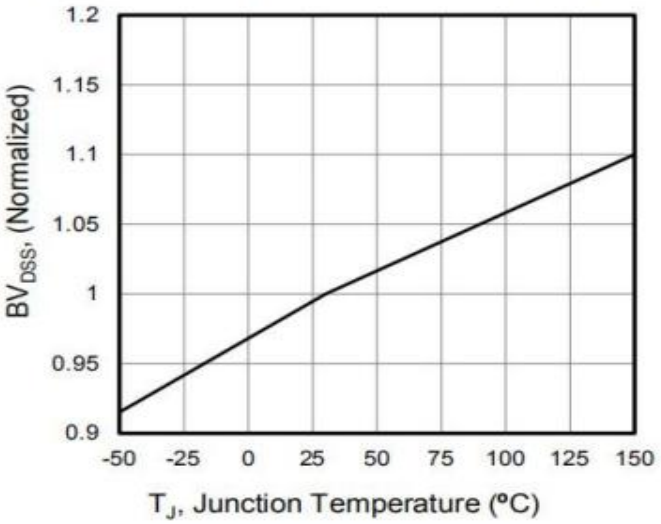


Figure 5. Gate Charge

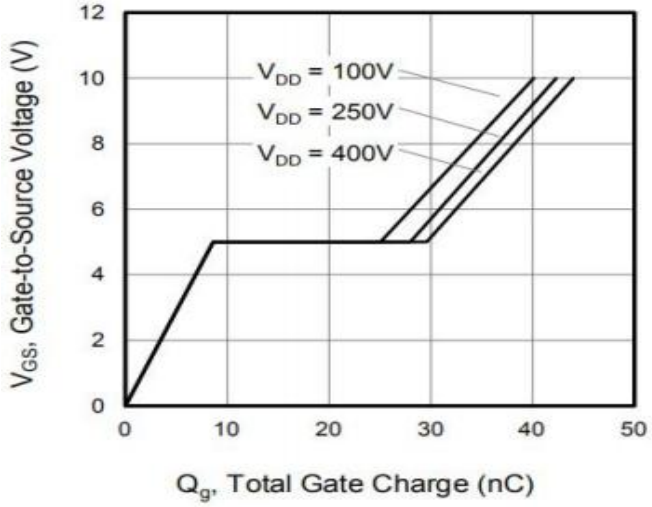


Figure 6. On-Resistance vs. Temperature

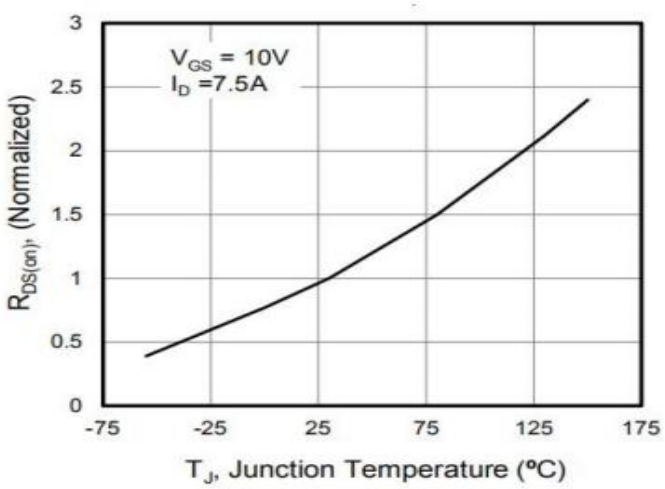


Figure 7. Capacitance

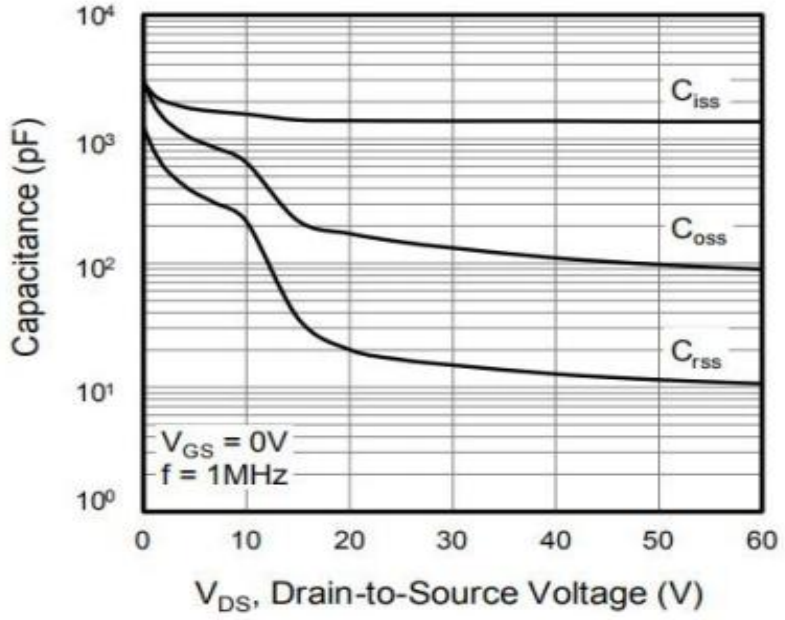
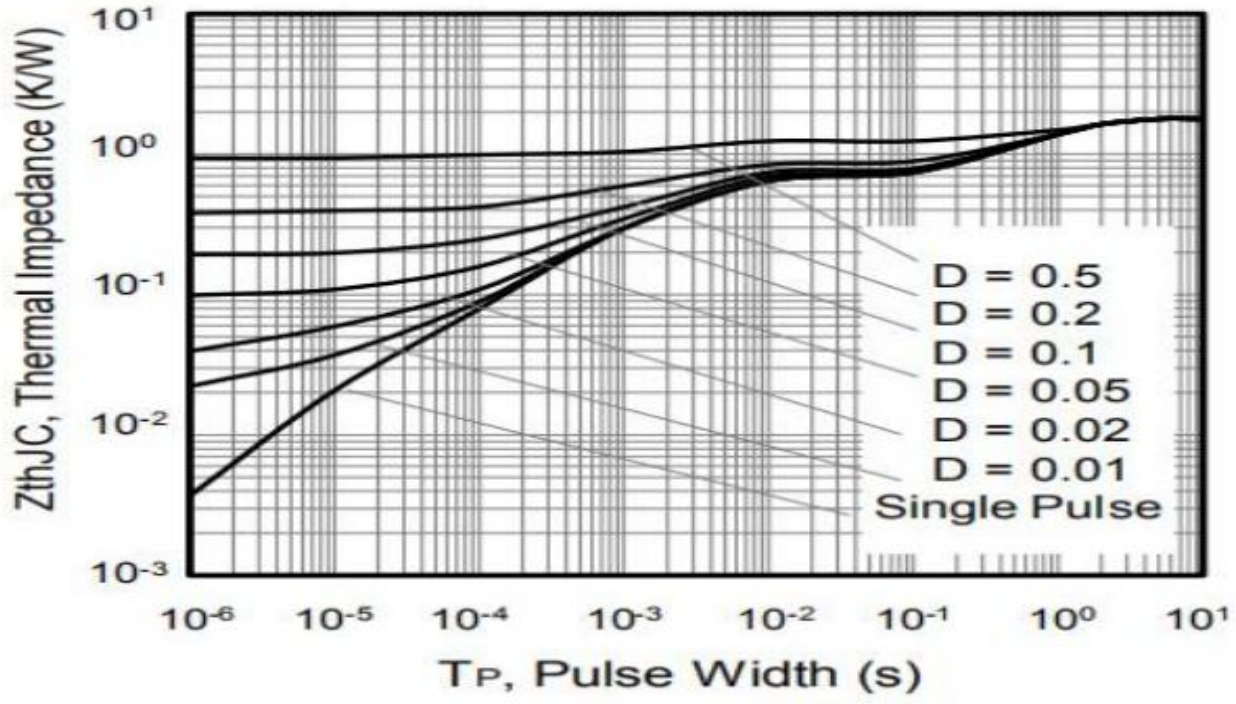


Figure 8. Transient Thermal Impedance
TO-220F



Test Circuits and Waveforms

Figure A: Gate Charge Test Circuit and Waveform

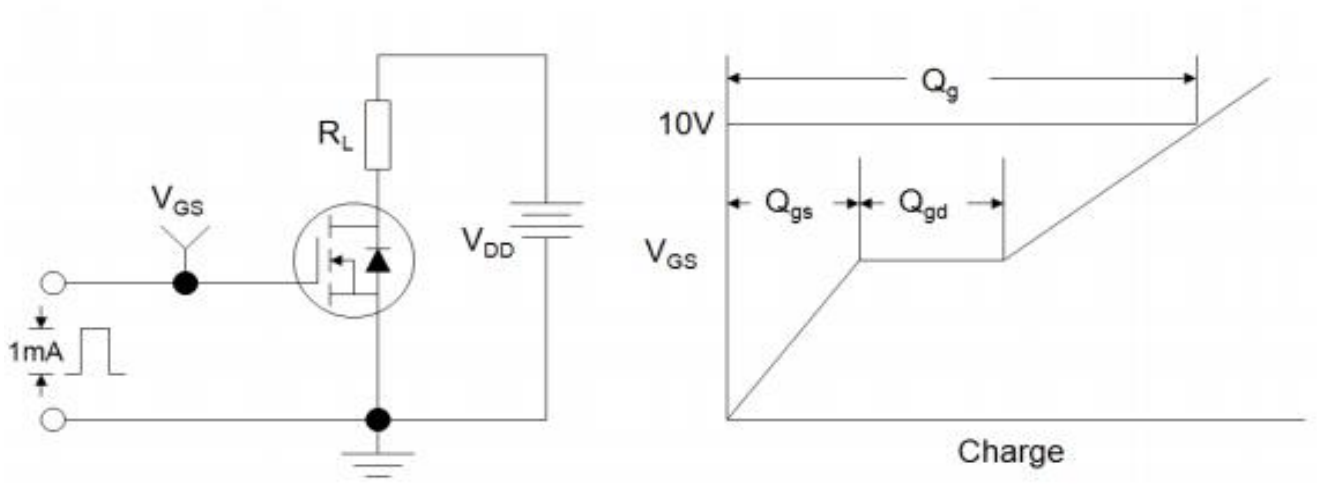


Figure B: Resistive Switching Test Circuit and Waveform

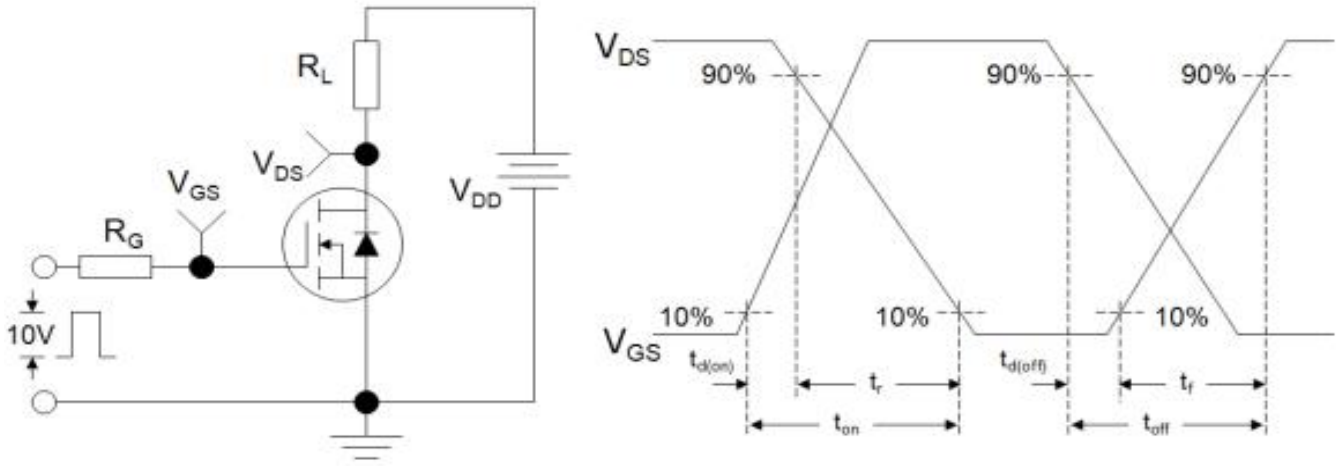
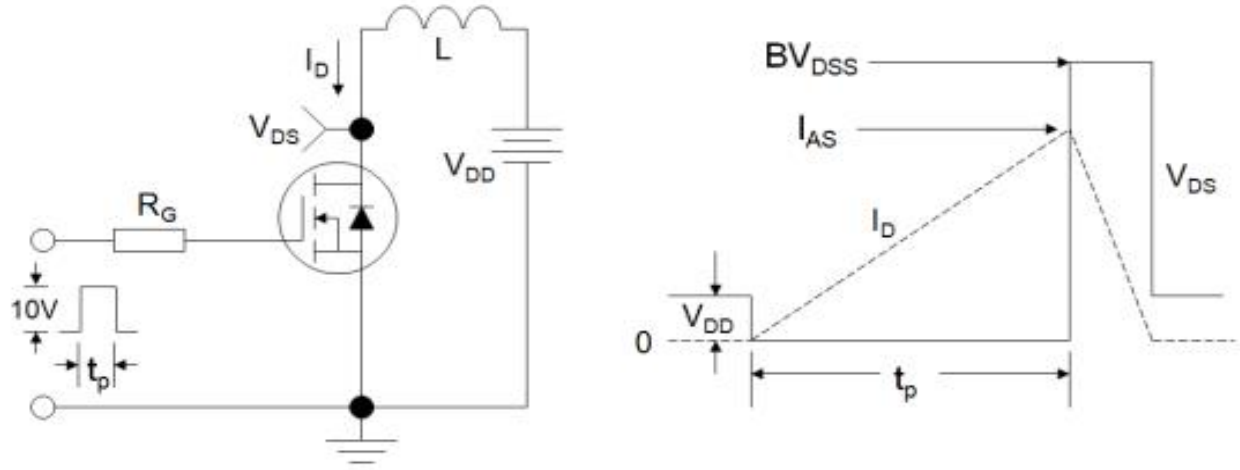
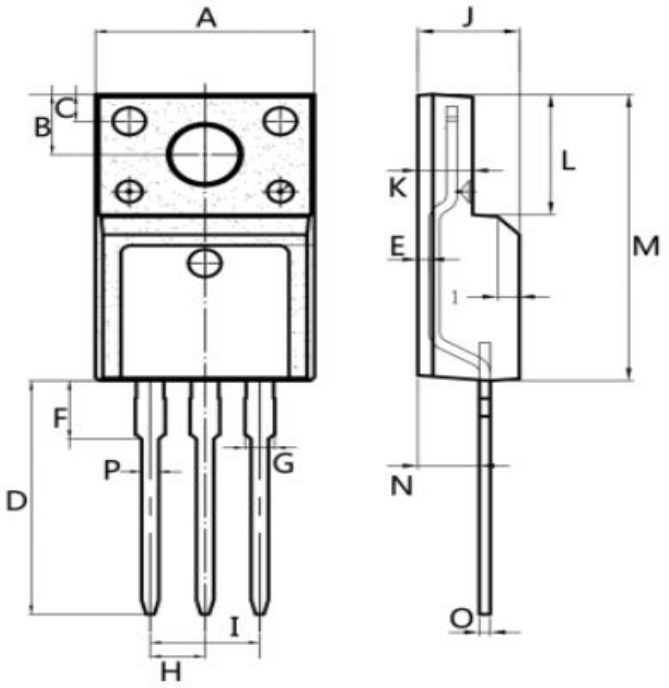


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



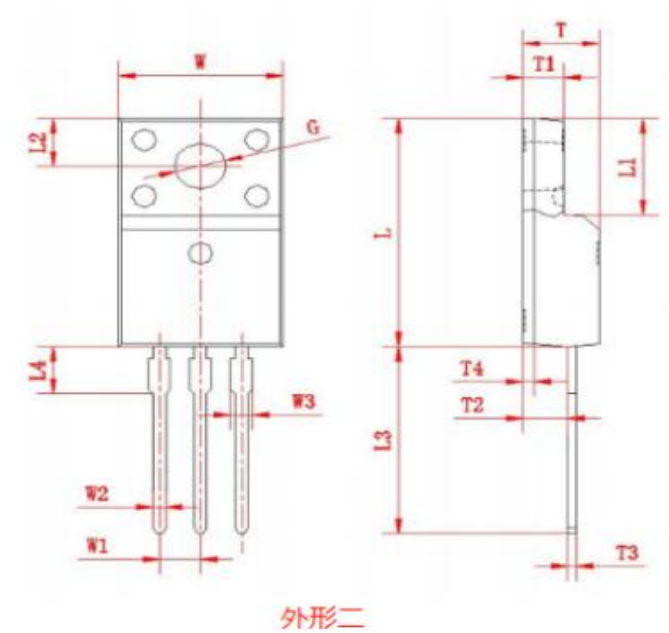
Package outline drawing(TO-220F Unit: mm)



外形一

Dim.	Min.	Max.
A	9.95	10.36
A1	4.5	5.0
B	2.95	3.25
C	1.25	1.45
D	12.60	13.60
E	0.40	0.60
F	2.8	3.5
G	1.30	1.45
H	(2.54)	
I	(5.08)	
J	4.60	4.75
K	2.45	2.65
L	6.5	6.8
M	15.4	16.0
N	2.25	3.05
O	0.45	0.55
P	0.70	0.90

All Dimensions in millimeter



外形二

Dim.	Min.	Max.
W	9.95	10.36
W1	(2.54)	
W2	0.70	0.90
W3	1.25	1.47
L	15.67	16.07
L1	6.48	6.88
L2	3.2	3.4
L3	12.6	13.6
L4	(3.23)	
T	4.50	4.90
T1	2.34	2.74
T2	2.25	2.95
T3	0.45	0.60
T4	(0.70)	
G	3.08	3.28

All Dimensions in millimeter

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