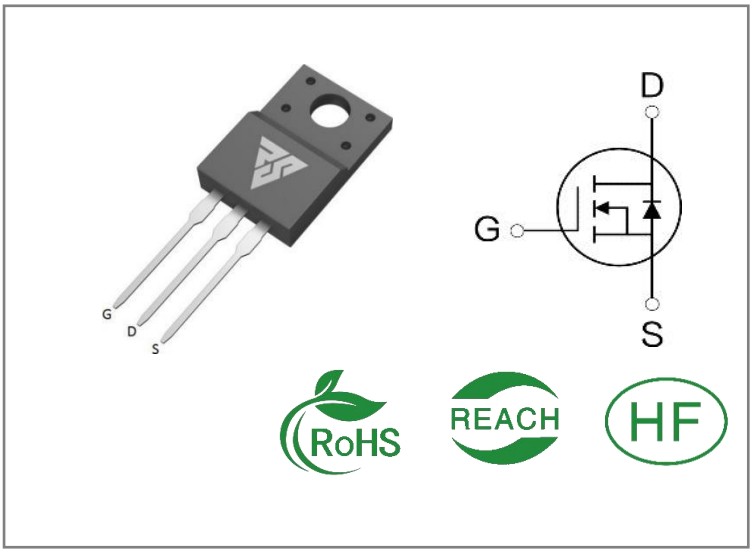
ID	R_{DS}(ON)(Typ)	VDSS
13.8A	240mΩ	650V



Applications:

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

Features:

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

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RS65R280F	T0-220F	RS65R280F	Tube	50 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS65R280F	Units
VDSS	Drain-to-Source Voltage	650	V
ID	Continuous Drain Current TC=25℃	13.8	A
ID	Continuous Drain Current TC=100℃	8.7	
IDM	Pulsed Drain Current (Note*1)	42	
PD	Power Dissipation	33	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Engergy L=10mH,VDS= 50V, RG = 25 Ω，TC=25℃	260	mJ
dv/dt	MOSFET dv/ dt ruggedness VDS = 0...400V	50	V/ns
dv/dt	Reverse diode dv/dt VDS = 0...400V, Tj = 25℃, ISD≤ID	15	V/ns
TL TPKG	Maximum Temperature for Soldering Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds	300 260	℃
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	RS65R280F	Units	Test Conditions
RθJC	Junction-to-Case	3.8	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃
RθJA	Junction-to- Ambient	80		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	650	--	--	V	VGS=0V,ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=650V,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)	--	240	280	mΩ	VGS=10V,ID=4.5A
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	--	24	--	nS	VDS=325V ID=13.8A RG=25Ω
trise	Rise Time	--	41	--		
td(OFF)	Turn- OFF Delay Time	--	86	--		
tfall	Fall Time	--	37	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	989	--	pF	VGS=0V VDS=50V f=1.0MHz
Coss	Output Capacitance	--	73	--		
Crss	Reverse Transfer Capacitance	--	4.4	--		
Qg	Total Gate Charge	--	26	--	nC	VDS=520V ID=13.8A VGS=10V
Qgs	Gate- to- Source Charge	--	4.9	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	12	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	13.8	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	42	A	
VSD	Diode Forward Voltage	--	--	1.4	V	IS=13.8A,VGS=0V
trr	Reverse Recovery Time	--	302	--	nS	VR=100V IS=13.8A,di/dt=100 A/μs
Qrr	Reverse Recovery Charge	--	3.7	--	μC	

Notes:

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

Typical Feature Curve

Figure1. Output Characteristics

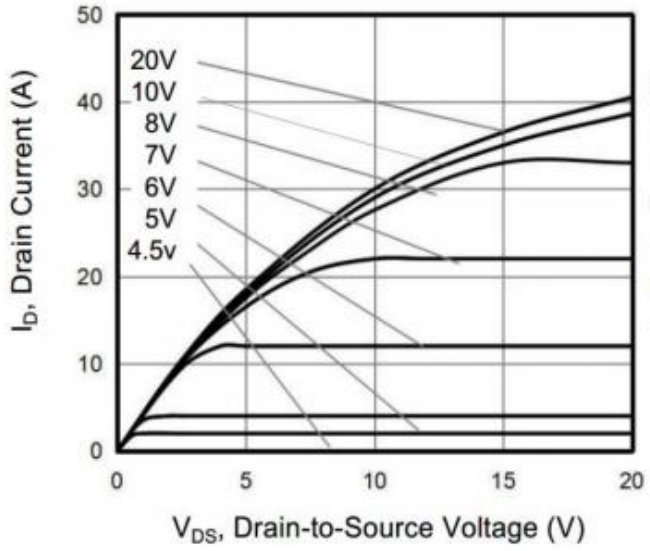


Figure2. Transfer Characteristics

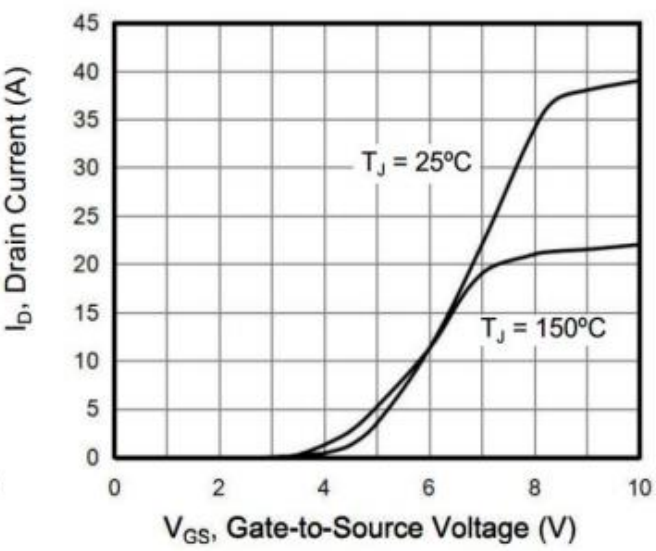


Figure 3. On-Resistance VS.Drain Current

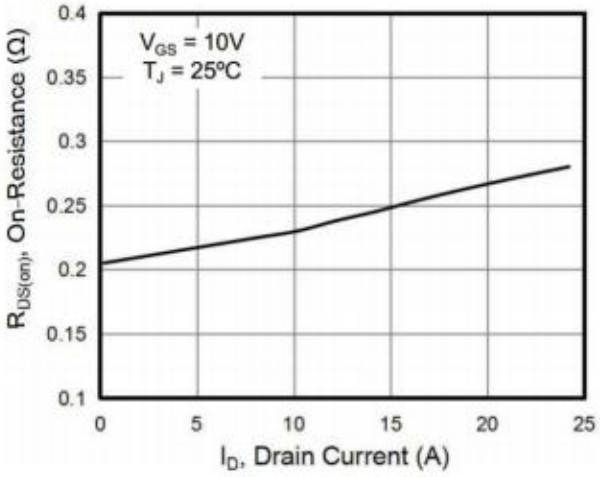


Figure 4. Capacitance

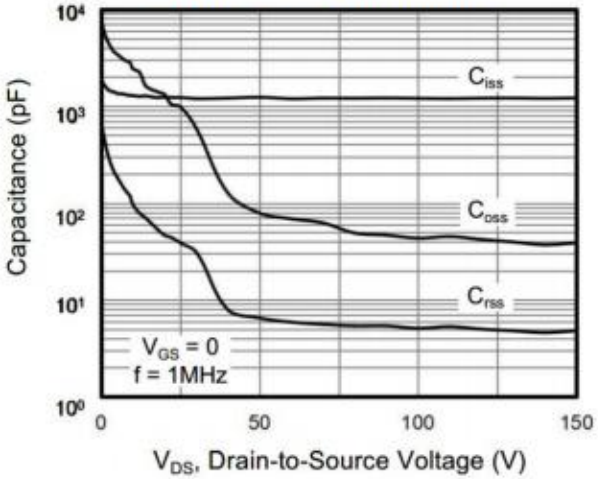


Figure 5. Gate Charge

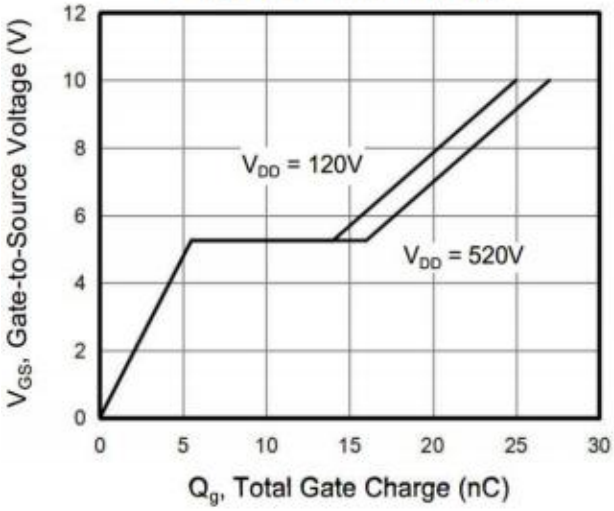


Figure 6.Body Diode Forward Voltage

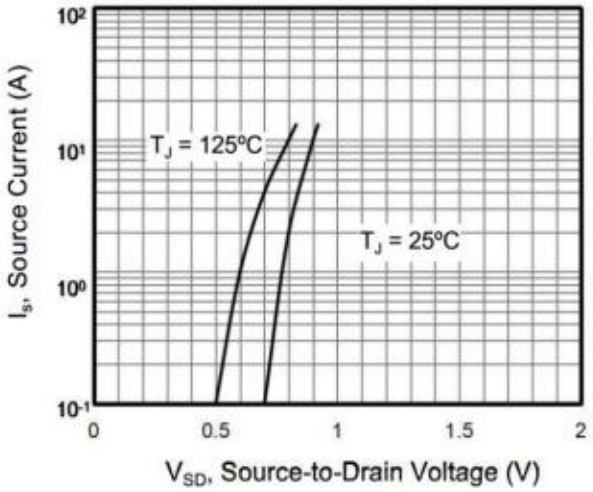


Figure 7.On-Resistan ce vs. Junction Temperature

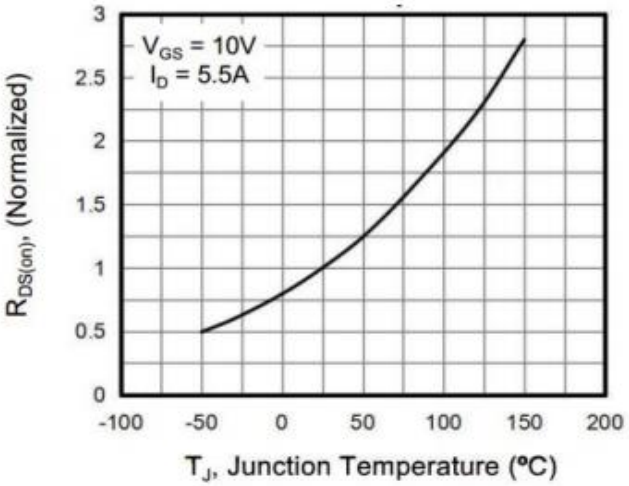


Figure 8.Threshold Voltage vs. Junction Temperature

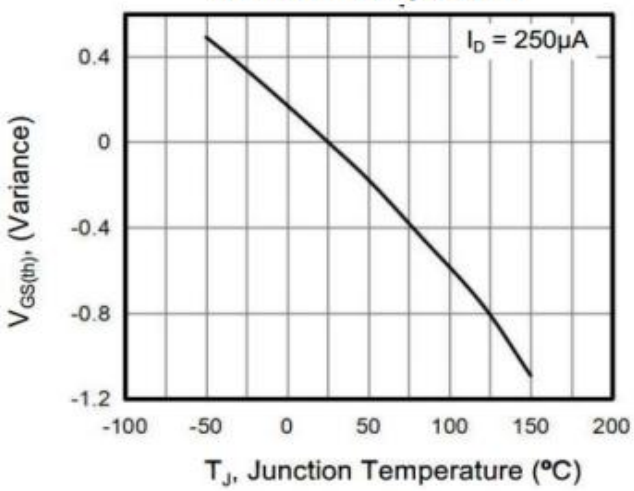


Figure 9.Breakdown voltage vs. Junction Temperature

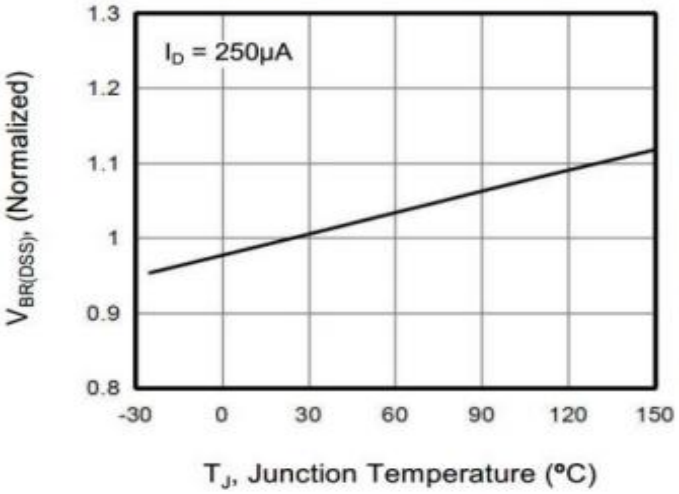


Figure 10.Transient Thermal Impedance

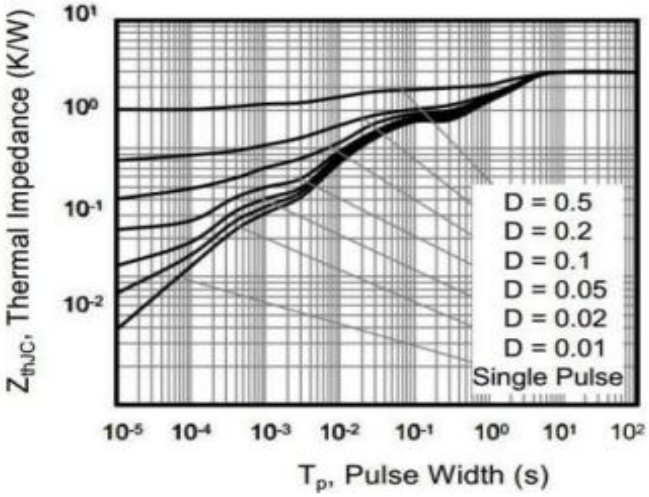
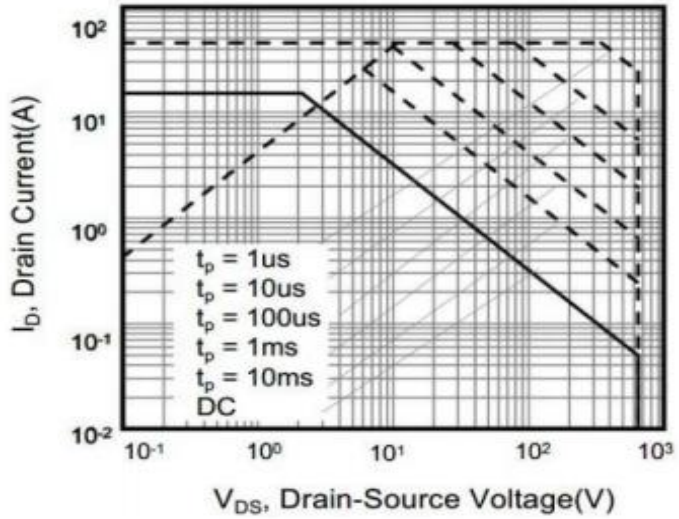


Figure 11.Safe operation area for



Test Circuits and Waveforms

Figure A: Gate Charge Test Circuit and Waveform

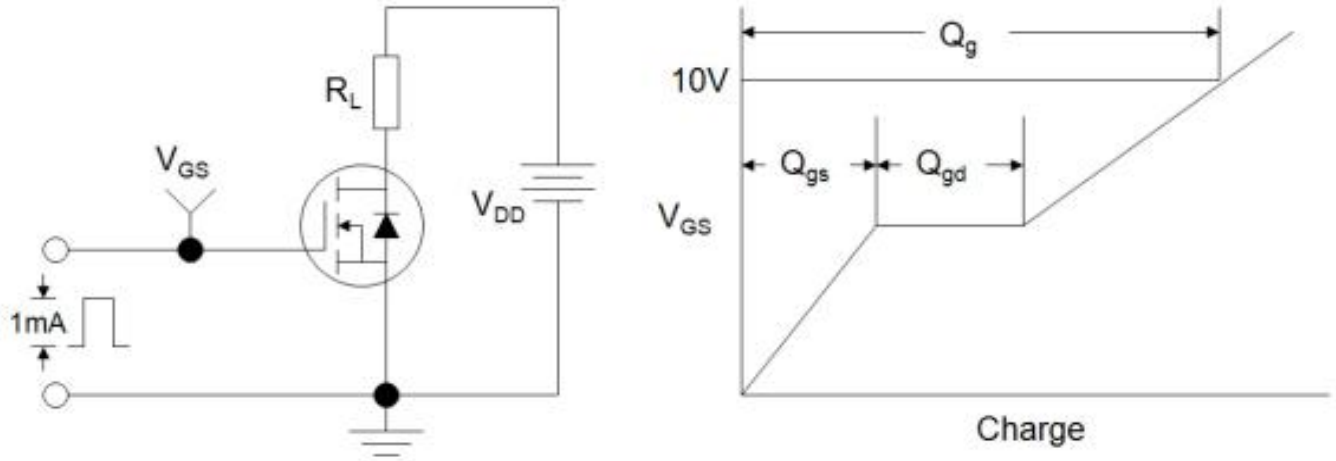


Figure B: Resistive Switching Test Circuit and Waveform

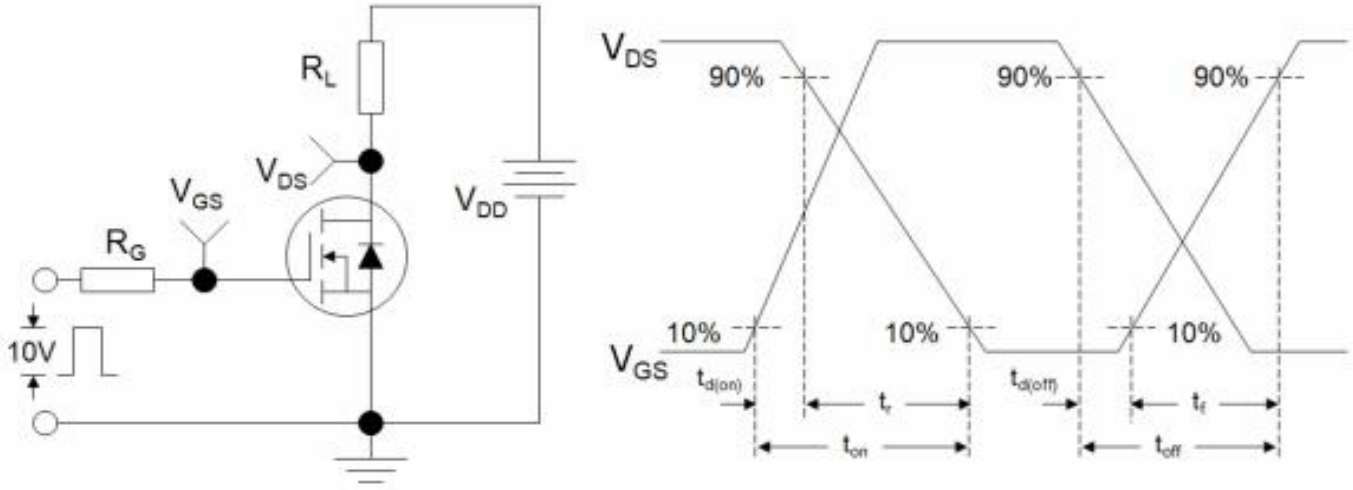
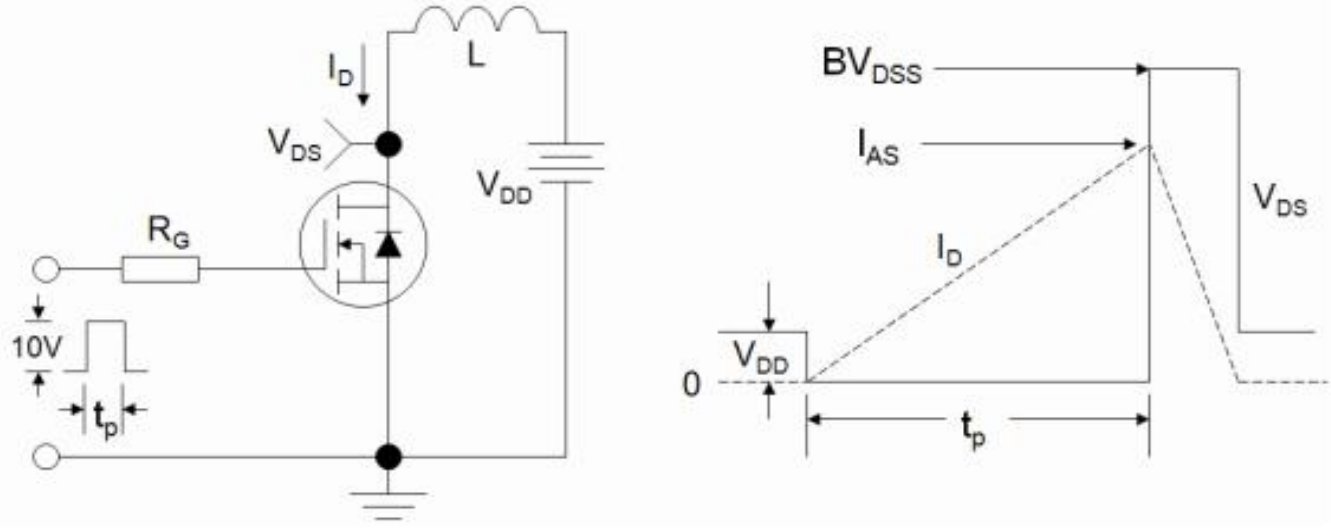
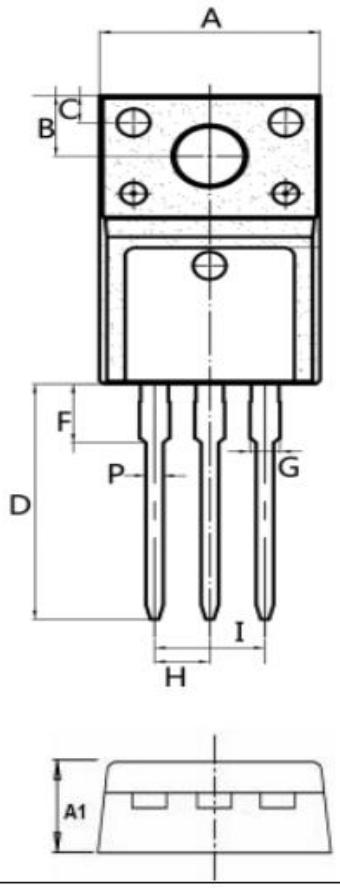


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



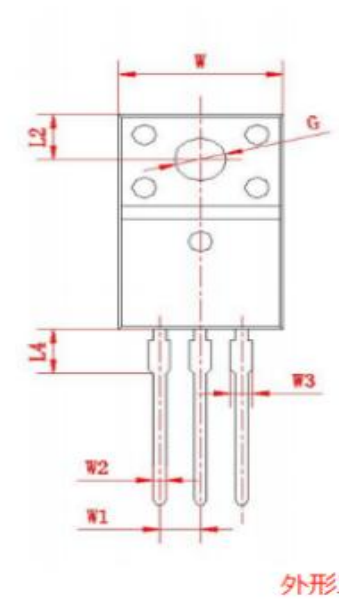
Package outline drawing(TO-220F Unit: mm)



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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