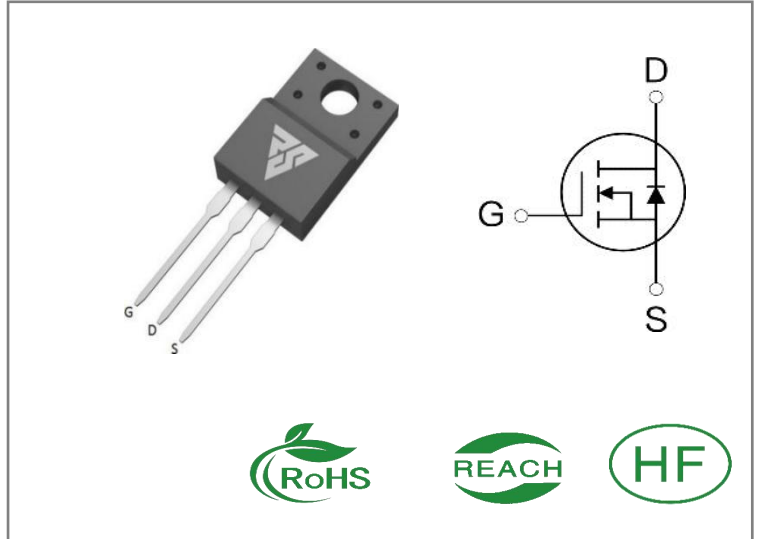


ID	R <sub>Ds(ON)</sub> (Typ)	VDSS
11A	0.49Ω	450V


**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.
RS11N45F	T0-220F	RS11N45F	Tube	50 PCS

**Absolute Maximum Ratings** Tc= 25°C unless otherwise specified

Symbol	Parameter	RS11N45F	Units
VDSS	Drain-to-Source Voltage	450	V
ID	Continuous Drain Current TC=25°C	11	A
IDM	Pulsed Drain Current (Note*1)	44	
PD	Power Dissipation	45	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Energy L = 10mH, VDD = 50V, RG = 25 Ω	360	mJ
TL TPKG	Maximum Temperature for Soldering	300 260	°C
	Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds		
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	RS11N45F	Units	Test Conditions
R $\theta$ JC	Junction-to-Case	2.9	°C / W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 °C
R $\theta$ JA	Junction-to-Ambient	62.5		1 cubic foot chamber, free air.

**OFF Characteristics** T<sub>J</sub>= 25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	450	--	--	V	VGS=0V, ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=450V, VGS=0V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	VGS=30V , VDS=0V
	Gate- to- Source Reverse Leakage	--	--	-100		VGS=-30V , VDS=0V

**ON Characteristics** T<sub>J</sub>=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain- to- Source On-Resistance(Note*2)	--	0.49	0.52	Ω	VGS=10V, ID=5.5A
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	--	15	--	nS	VDS=225V ID=11A RG=25Ω
trise	Rise Time	--	92	--		
td(OFF)	Turn- OFF Delay Time	--	70	--		
tfall	Fall Time	--	83	--		

**Dynamic Characteristics** Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	750	--	pF	VGS=0V VDS=25V f=1.0MHz
Coss	Output Capacitance	--	70	--		
Crss	Reverse Transfer Capacitance	--	25	--		
Qg	Total Gate Charge	--	21	--	nC	VDS=320V ID=11A VGS=10V
Qgs	Gate- to- Source Charge	--	5	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	17	--		

**Source- Drain Diode Characteristics**

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	11	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	44	A	
VSD	Diode Forward Voltage	--	--	1.4	V	IS=11A,VGS=0V
trr	Reverse Recovery Time	--	280	--	nS	VGS=0V IS=11A,di/dt=100 A/μs
Qrr	Reverse Recovery Charge	--	2.5	--	μC	

**Notes:**

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

Typical Feature Curve

Figure 1. 输出特性

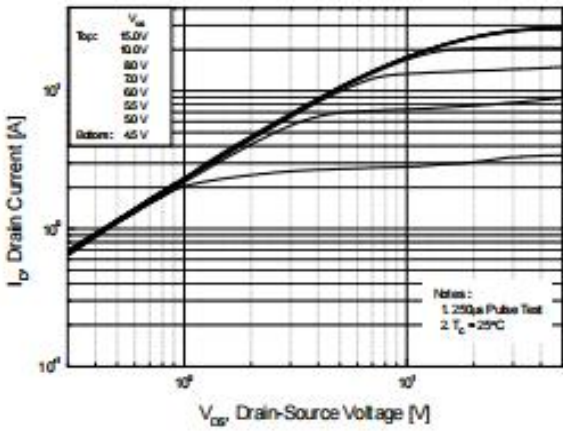


Figure 2. 传输特性

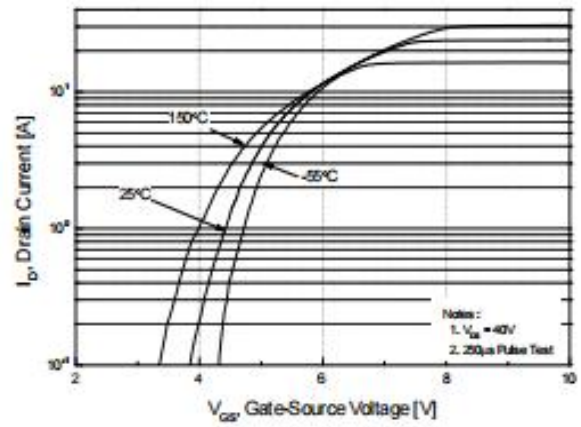


Figure 3. 导通电阻 vs. 漏极电流和栅压关系

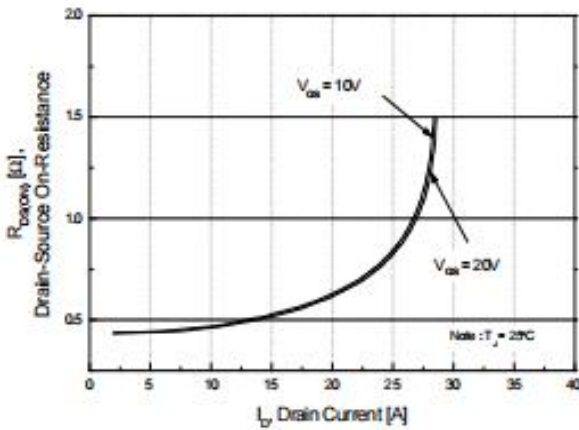


Figure 4. 体二极管正向压降 vs. 源极电流和温度关系

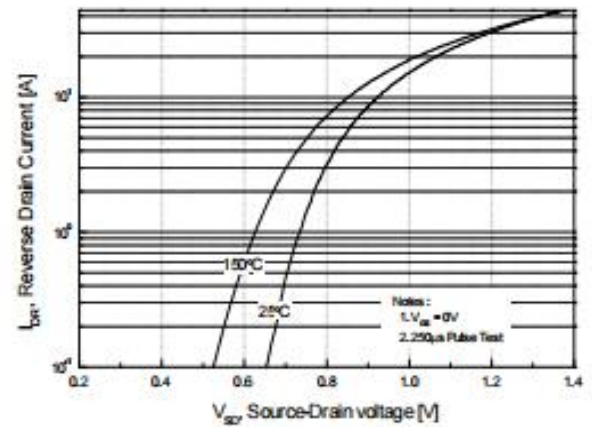


Figure 5. 电容特性

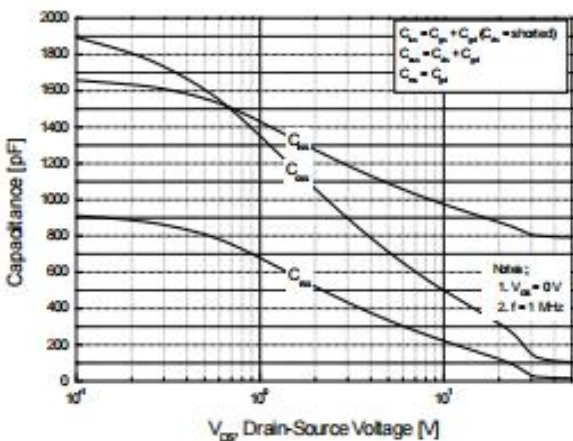
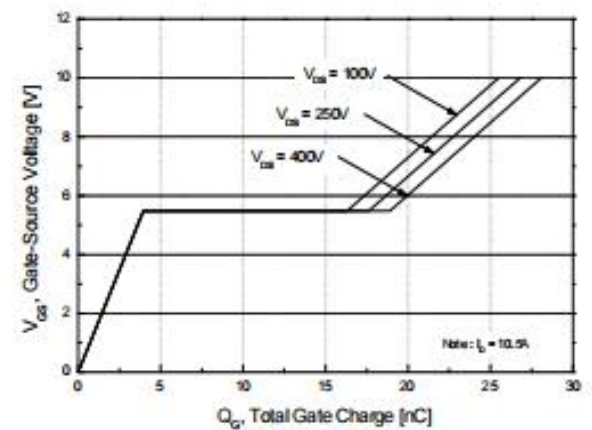
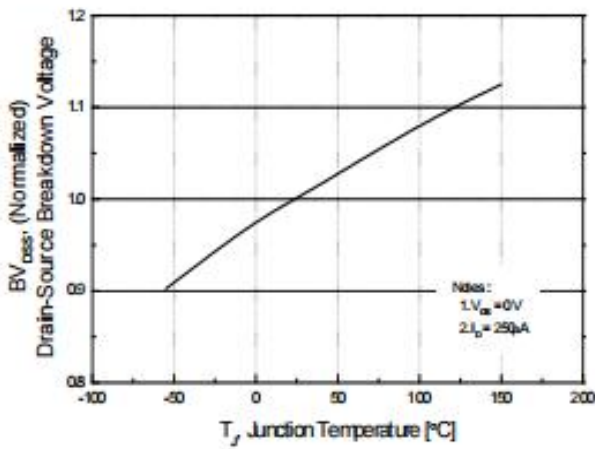


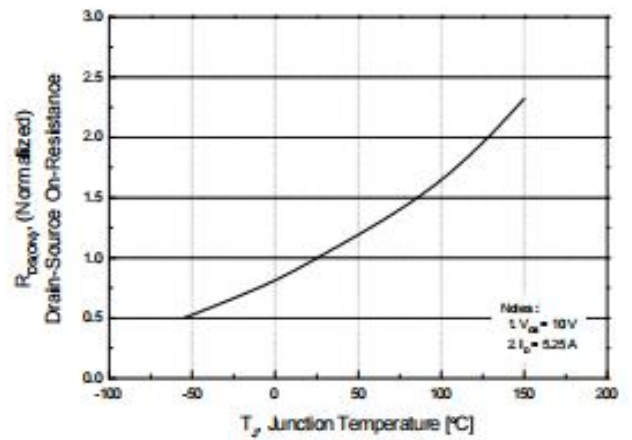
Figure 6. 栅极充电特性



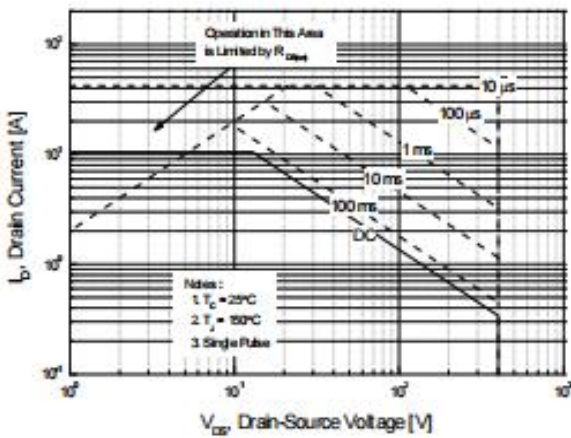
**Figure 7. 击穿电压vs.温度关系**



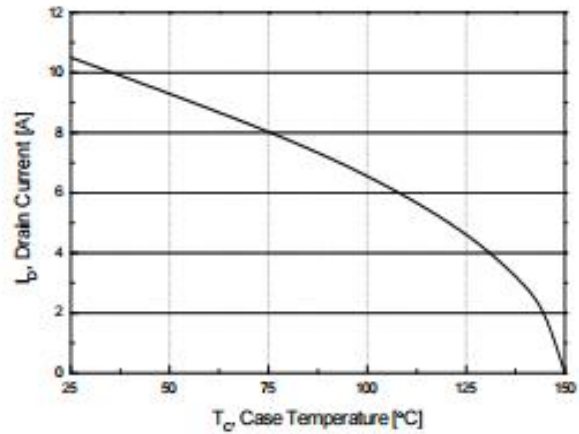
**Figure 8. 导通电阻vs.温度关系**



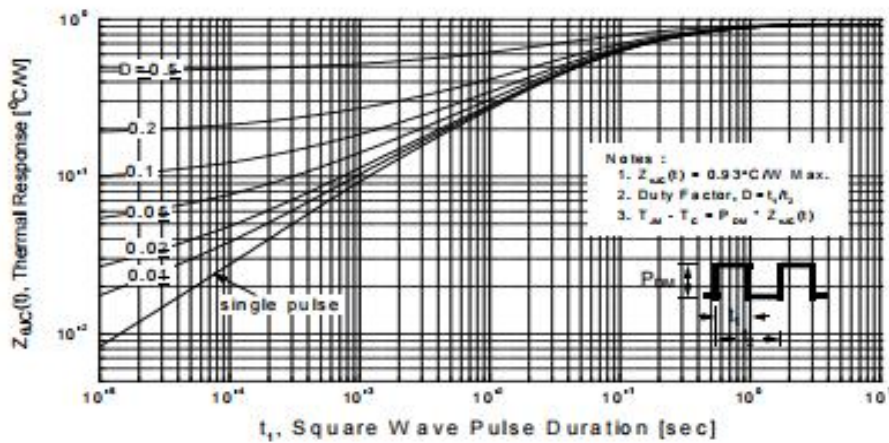
**Figure 9. 最大安全工作区域**



**Figure 10. 最大漏极电流**



**Figure 11. 瞬态热阻抗曲线**





Test Circuits and Waveforms

Figure A: Gate Charge Test Circuit and Waveform

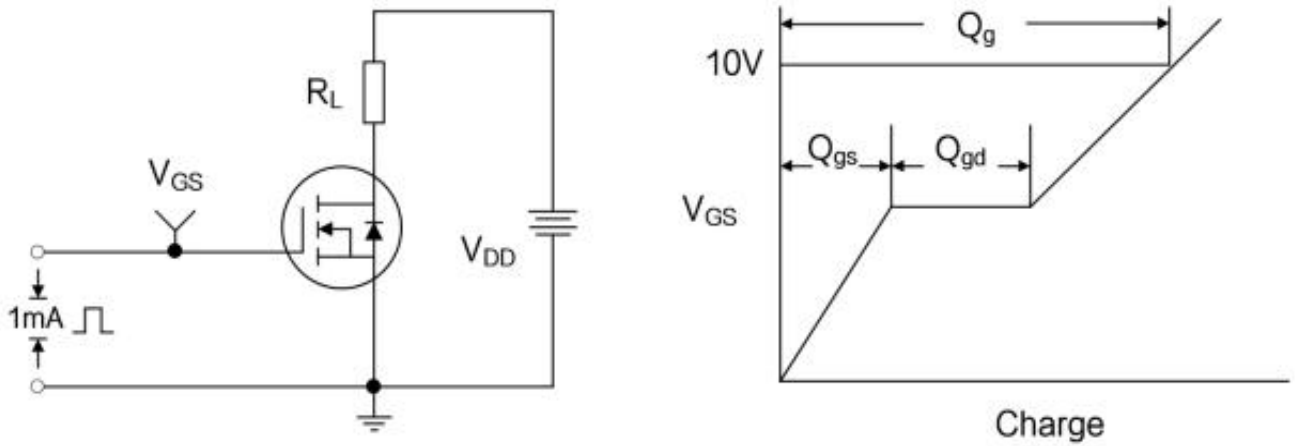


Figure B: Resistive Switching Test Circuit and Waveform

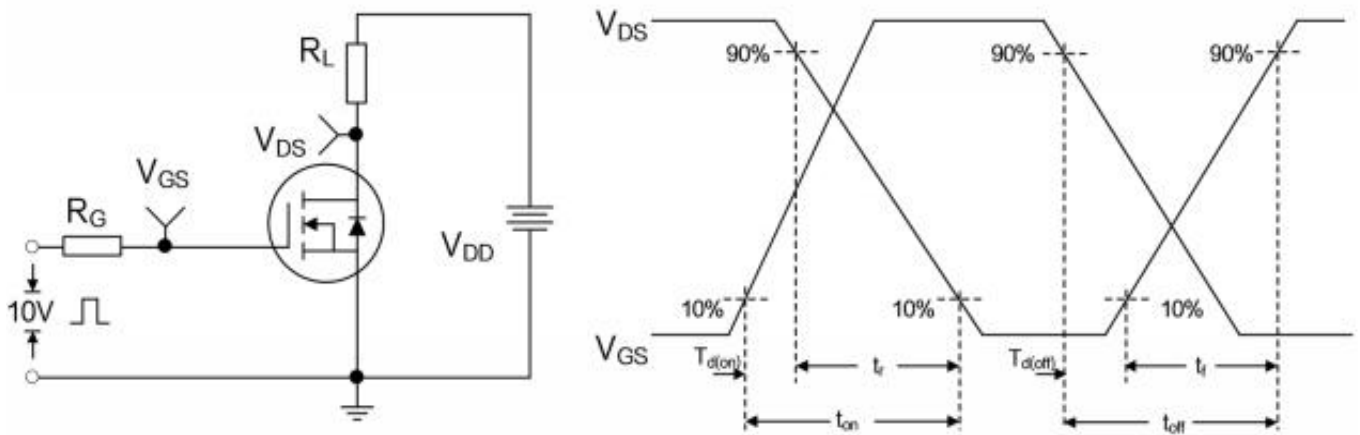
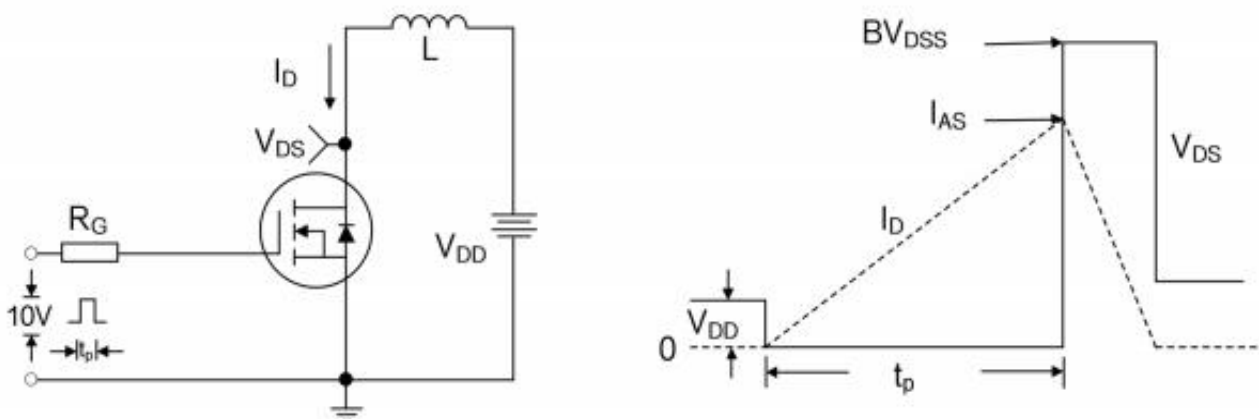
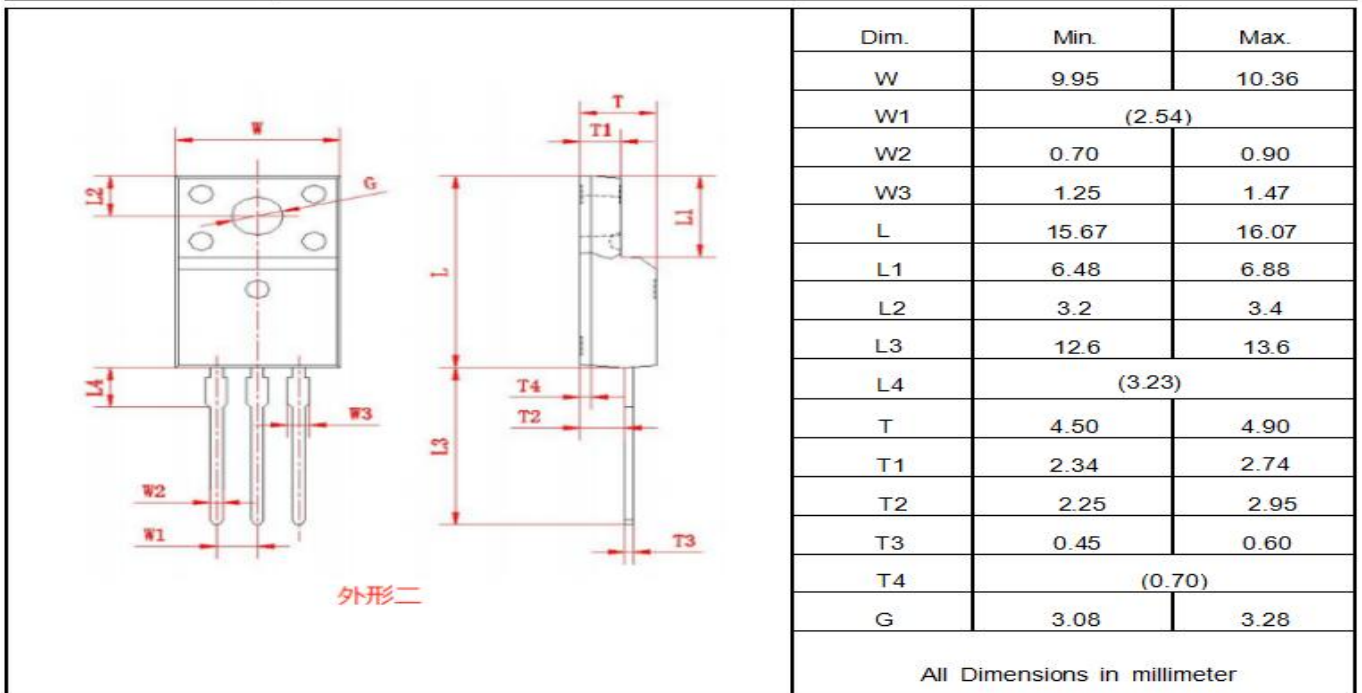
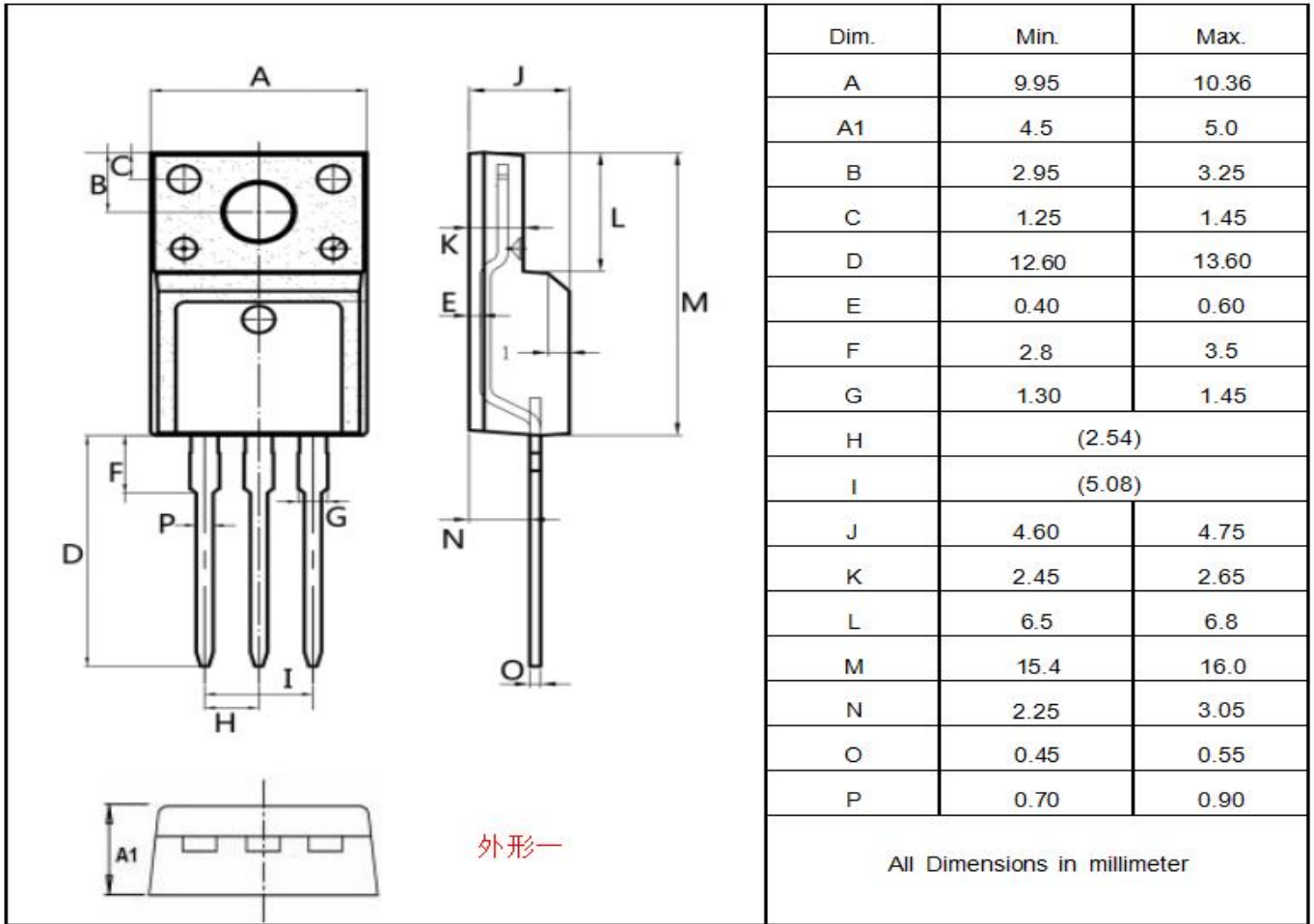


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



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



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