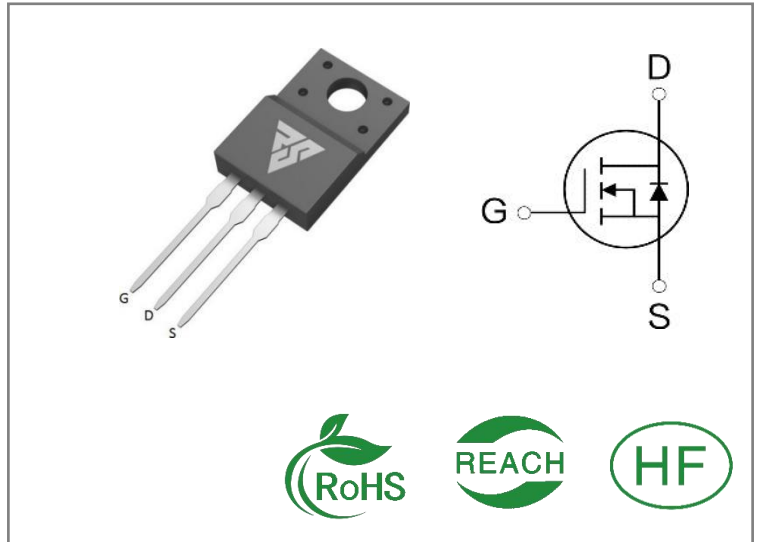


<b>ID</b>	<b>R<sub>DS(ON)</sub>(Typ)</b>	<b>VDSS</b>
15A	240mΩ	650V


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

Symbol	Parameter	RS65R280F	Units
VDSS	Drain-to-Source Voltage	650	V
ID	Continuous Drain Current TC=25°C	15	A
ID	Continuous Drain Current TC=100°C	9	
IDM	Pulsed Drain Current (Note*1)	45	
PD	Power Dissipation	34	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Energy L=10mH,VDS= 50V, RG = 25 Ω, TC=25°C	306	mJ
dv/dt	MOSFET dv/ dt ruggedness VDS = 0...400V	50	V/ns
dv/dt	Reverse diode dv/dt VDS = 0...400V, Tj = 25°C, ISD≤ID	15	V/ns
TL TPKG	Maximum Temperature for Soldering	300	°C
	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	RS65R280F	Units	Test Conditions
R $\theta$ JC	Junction-to-Case	3.4	°C / W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 150 °C
R $\theta$ JA	Junction-to-Ambient	80		1 cubic foot chamber, free air.

**OFF Characteristics** TJ= 25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	650	--	--	V	VGS=0V, ID=250 $\mu$ A
IDSS	Drain- to- Source Leakage Current	--	--	1	$\mu$ A	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°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain- to- Source On-Resistance(Note*2)	--	240	280	m $\Omega$	VGS=10V, ID=7.5A
VGS(TH)	Gate Threshold Voltage	2	--	4	V	VGS=VDS, ID=250 $\mu$ A

**Resistive Switching Characteristics** Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn- on Delay Time	--	20	--	nS	VDS=400V ID=7.5A RG=25 $\Omega$
trise	Rise Time	--	40	--		
td(OFF)	Turn- OFF Delay Time	--	95	--		
tfall	Fall Time	--	43	--		

**Dynamic Characteristics** Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	1126	--	pF	VGS=0V VDS=100V f=1.0MHz
Coss	Output Capacitance	--	41	--		
Crss	Reverse Transfer Capacitance	--	2.4	--		
Qg	Total Gate Charge	--	26	--	nC	VDS=520V ID=7.5A VGS=10V
Qgs	Gate- to- Source Charge	--	3.6	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	10.5	--		

**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	--	--	45	A	
VSD	Diode Forward Voltage	--	0.85	--	V	IS=7.5A,VGS=0V
trr	Reverse Recovery Time	--	405	--	nS	VR=100V IS=7.5A,di/dt=100 A/μs
Qrr	Reverse Recovery Charge	--	4.0	--	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. Output Characteristics

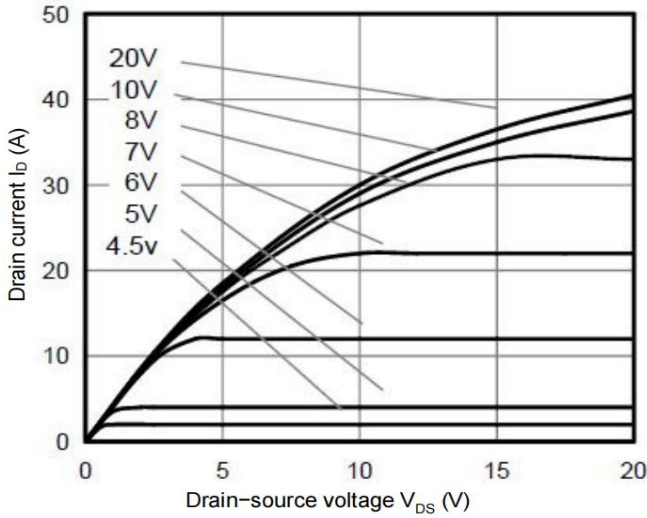


Figure 2. Transfer Characteristics

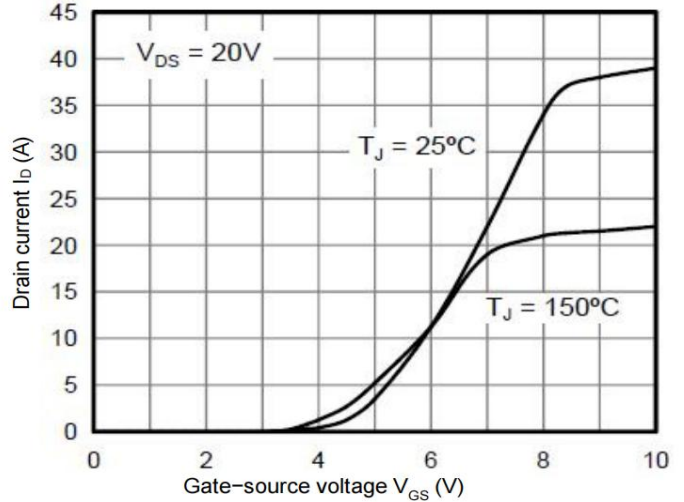


Figure 3. On-Resistance vs. Drain Current

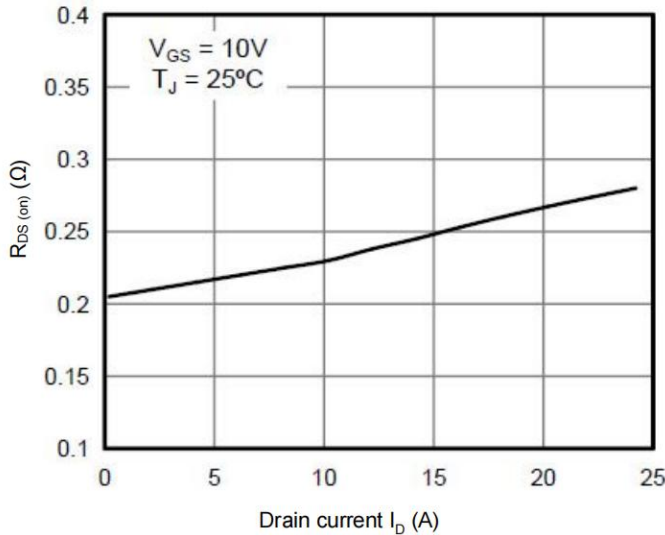


Figure 4. Capacitance Characteristics

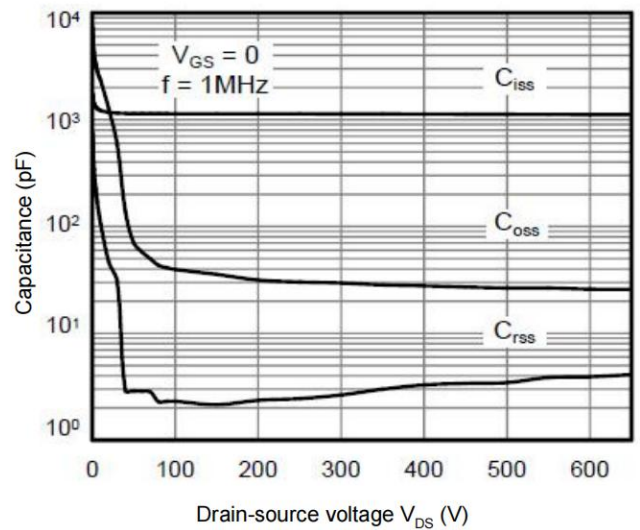


Figure 5. Gate Charge Characteristics

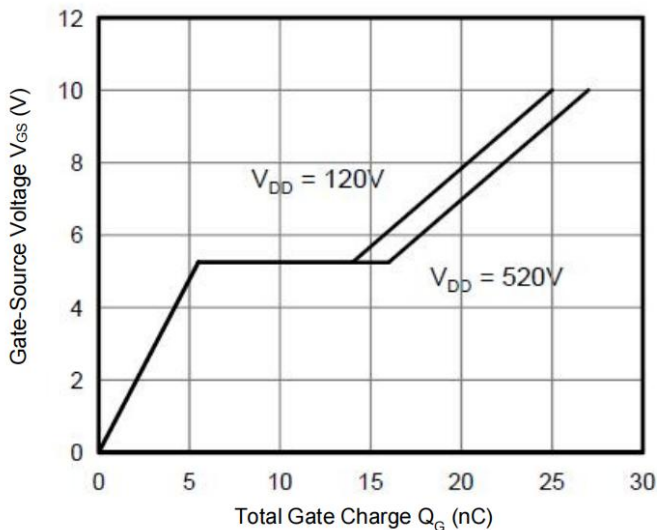


Figure 6. Body Diode Forward Voltage

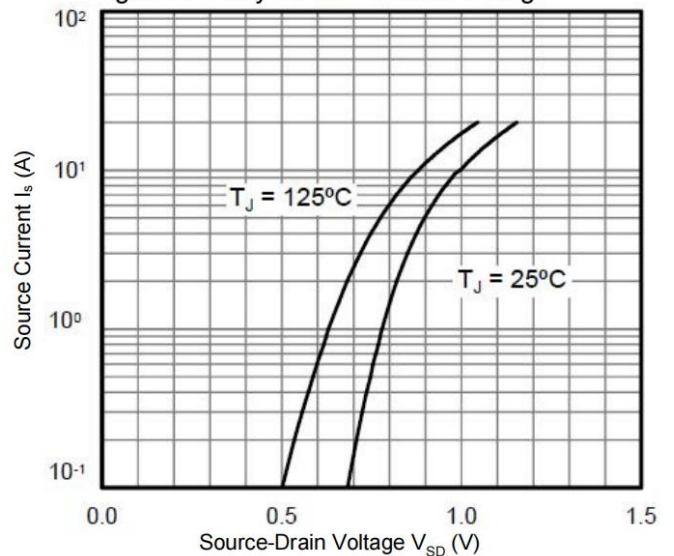


Figure 7. Breakdown Voltage vs. Temperature

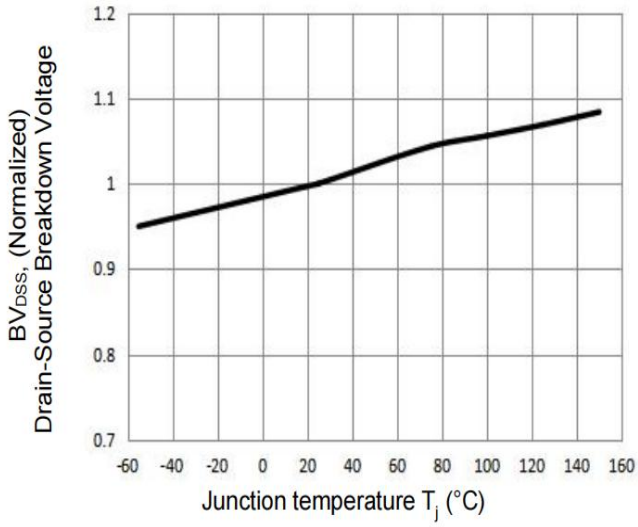


Figure 8. On-Resistance vs. Temperature

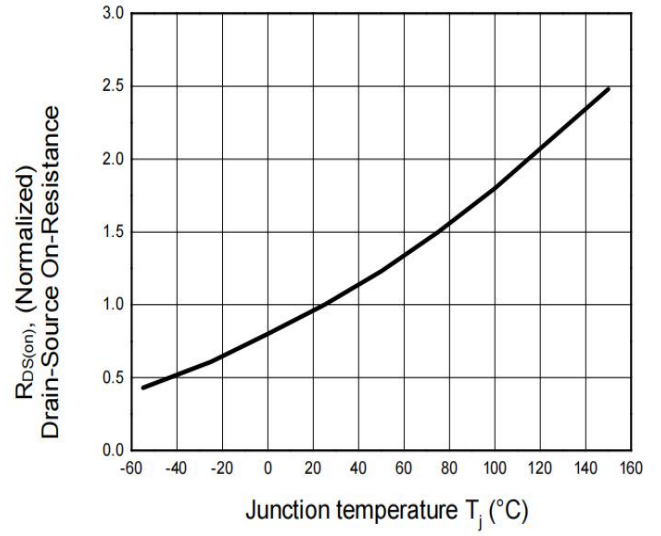
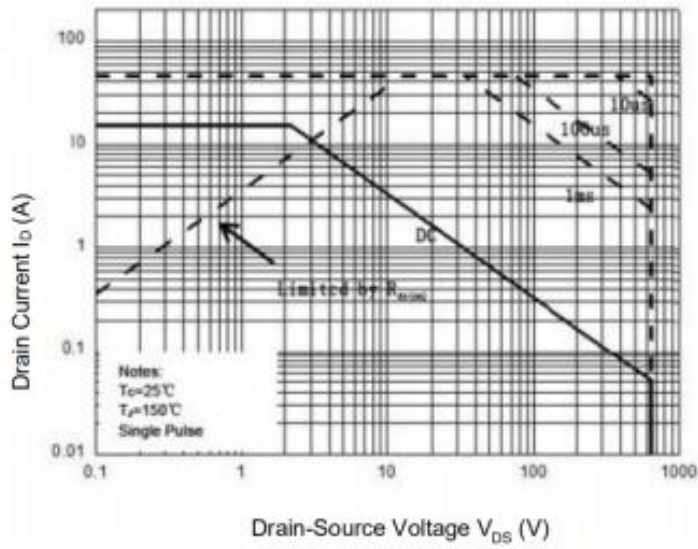


Figure 9. Maximum Safe Operating Area



Test Circuits and Waveforms

Figure A: Gate Charge Test Circuit and Waveform

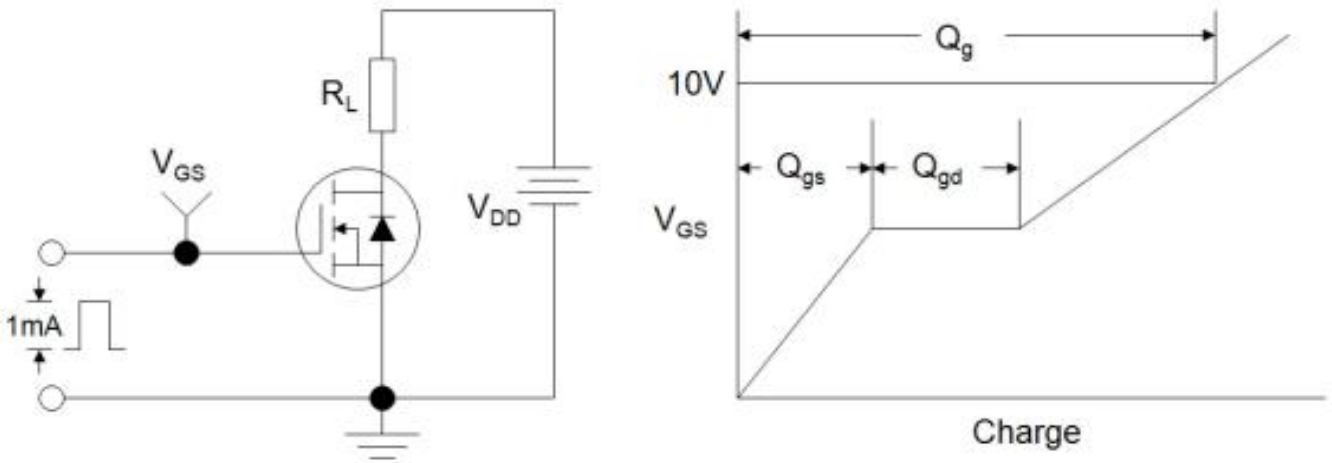


Figure B: Resistive Switching Test Circuit and Waveform

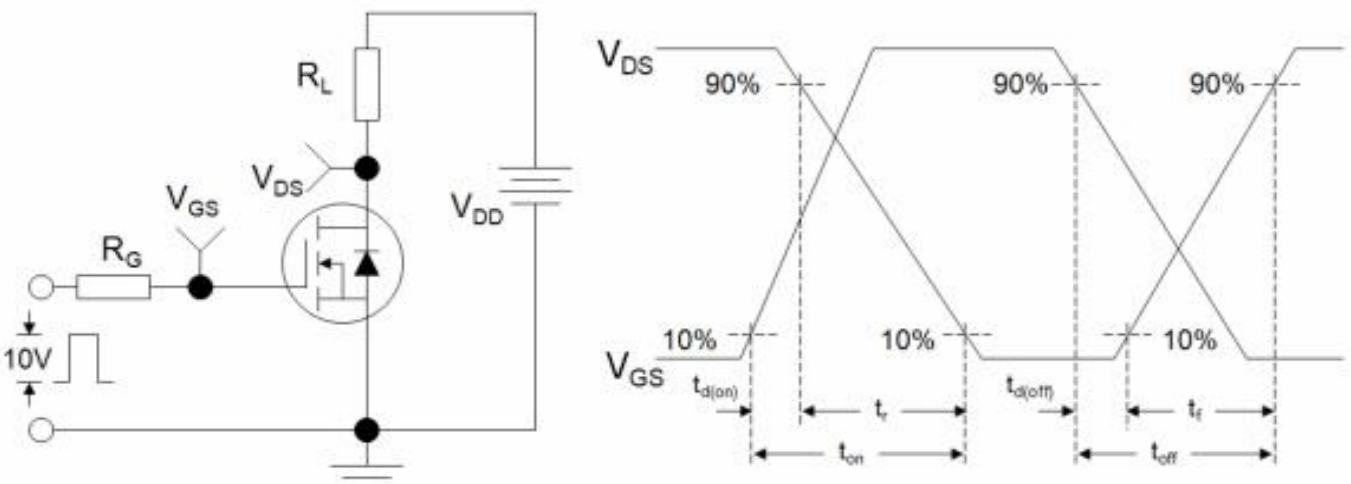
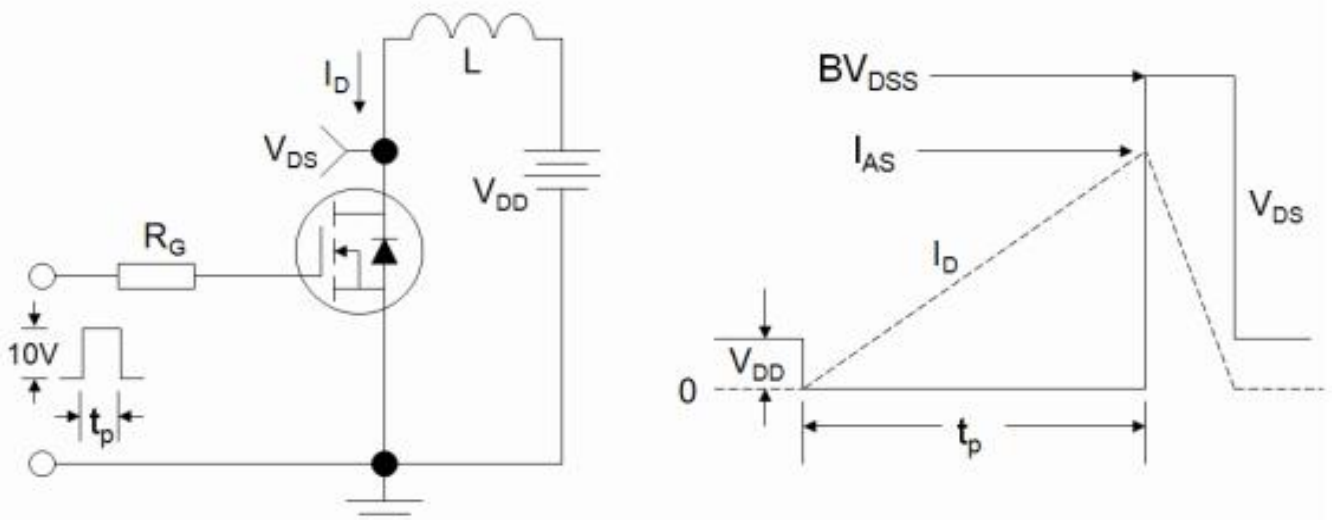
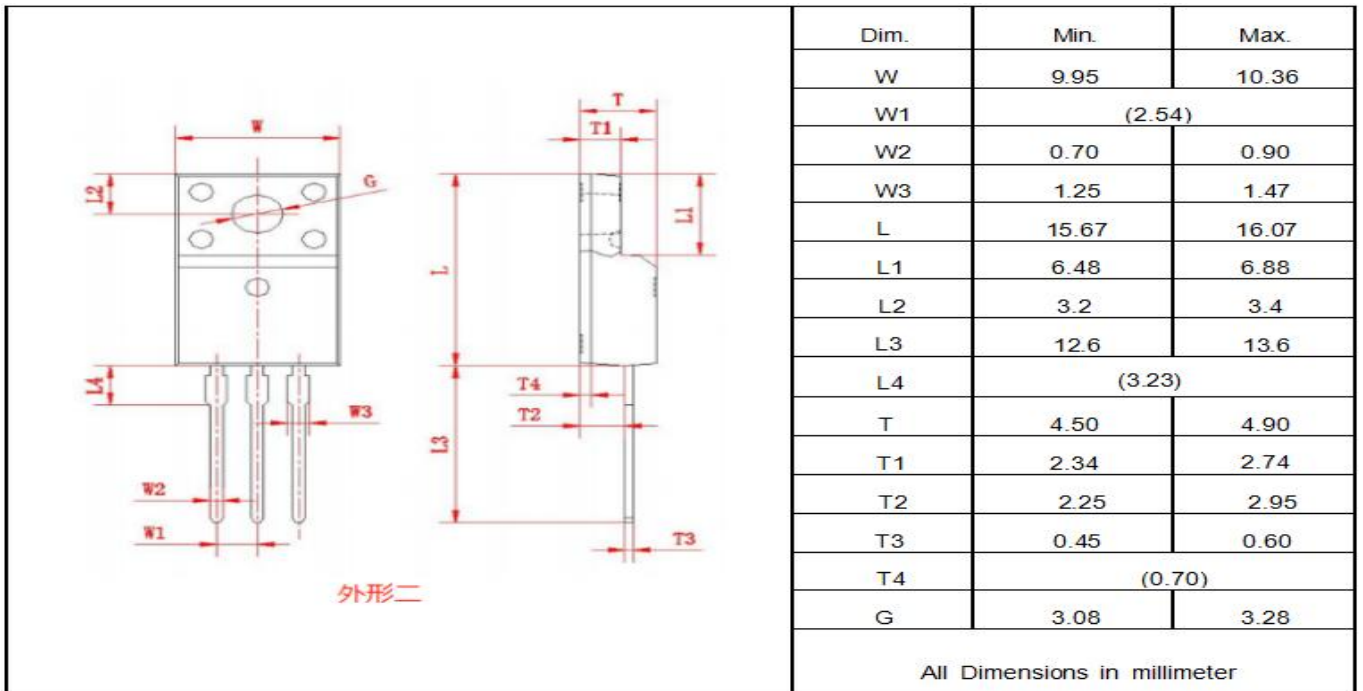
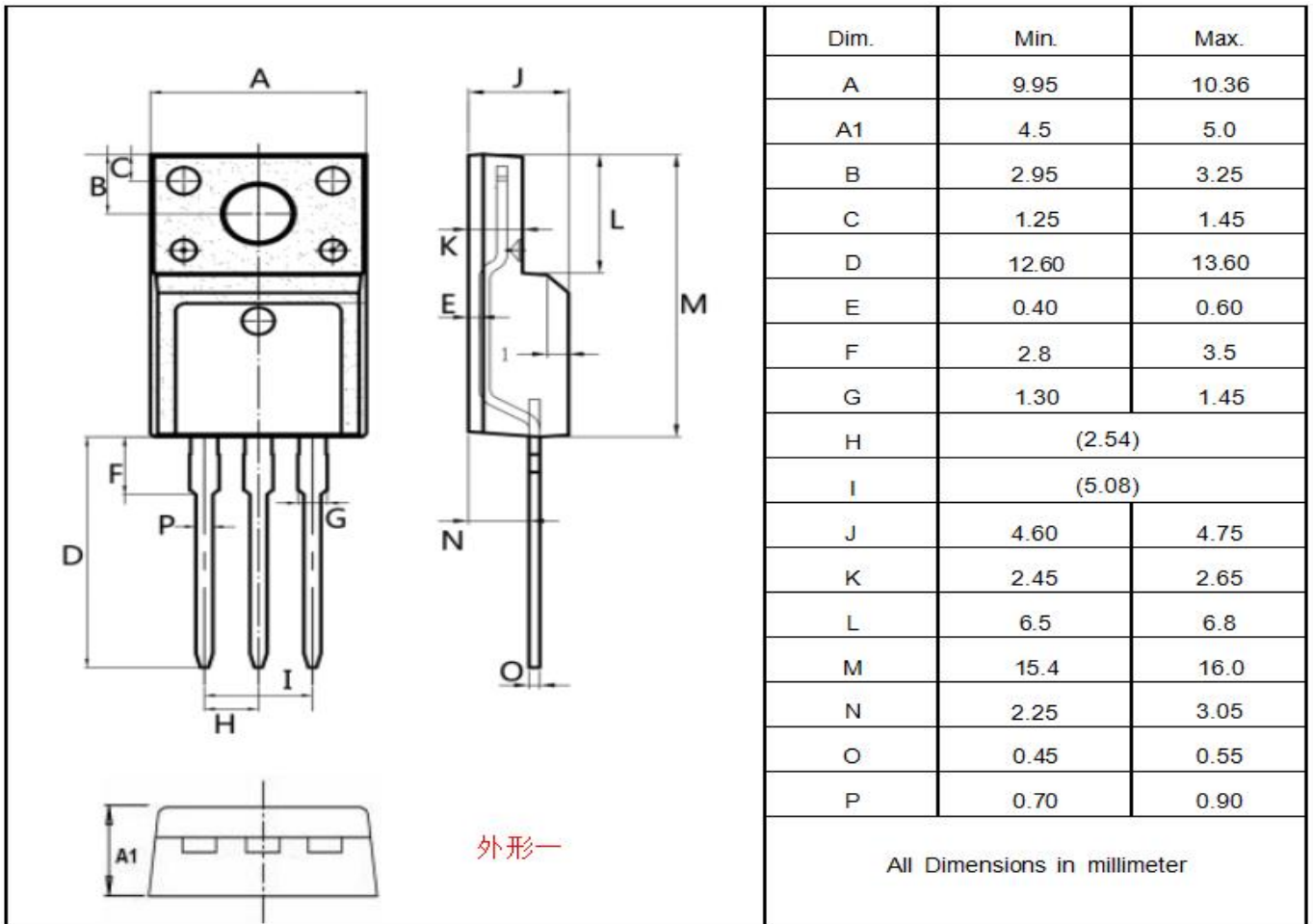


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



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



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