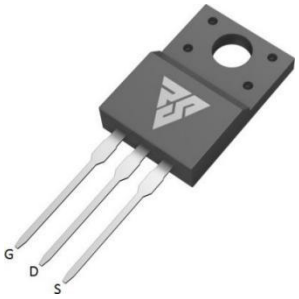
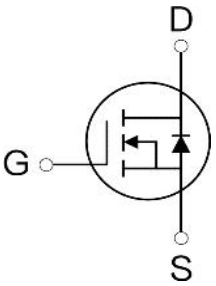
ID	R_{DS}(ON)(Typ)	VDSS
11A	320mΩ	700V





RoHS REACH HF

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.
RS70R380F	T0-220F	RS70R380F	Tube	50 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS70R380F	Units
VDSS	Drain-to-Source Voltage	700	V
ID	Continuous Drain Current TC=25℃	11	A
ID	Continuous Drain Current TC=100℃	7	
IDM	Pulsed Drain Current (Note*1)	33	
Ptot	Total Power Dissipation	88	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Engergy L=10mH,VDS= 50V, RG = 25 Ω，TC=25℃	210	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	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	RS70R380F	Units	Test Conditions
RθJC	Junction-to-Case	4	℃/ 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	700	--	--	V	VGS=0V,ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=700V,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)	--	320	360	mΩ	VGS=10V,ID=3.2A
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	--	18	--	nS	VDS=350V ID=11A RG=25Ω
trise	Rise Time	--	33	--		
td(OFF)	Turn- OFF Delay Time	--	68	--		
tfall	Fall Time	--	29	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	747	--	pF	VGS=0V VDS=50V f=400KHz
Coss	Output Capacitance	--	55	--		
Crss	Reverse Transfer Capacitance	--	3.3	--		
Qg	Total Gate Charge	--	20	--	nC	VDS=560V ID=11A VGS=10V
Qgs	Gate- to- Source Charge	--	3.7	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	9	--		

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	--	--	33	A	
VSD	Diode Forward Voltage	--	1.4	--	V	IS=11A,VGS=0V
trr	Reverse Recovery Time	--	326	--	nS	VR=100V IS=11A,di/dt=100A /μs
Qrr	Reverse Recovery Charge	--	2.9	--	μC	

Notes:

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

Typical Feature Curve

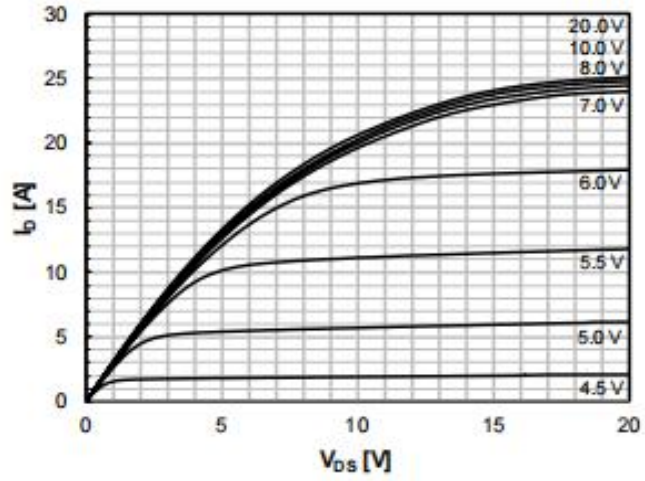


Fig. 1 Output characteristics

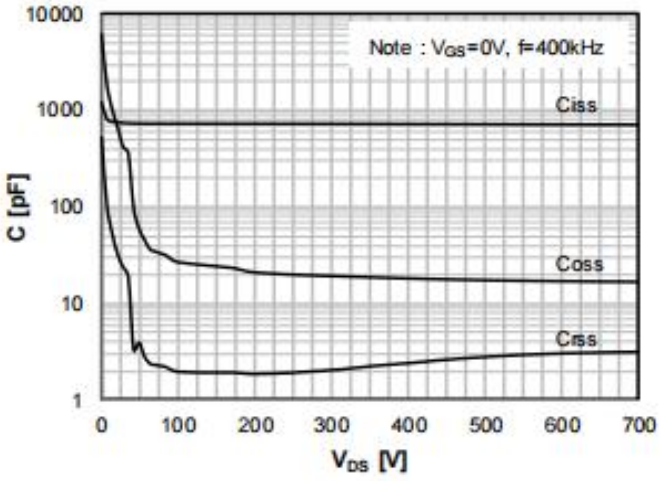


Fig. 2 Capacitances

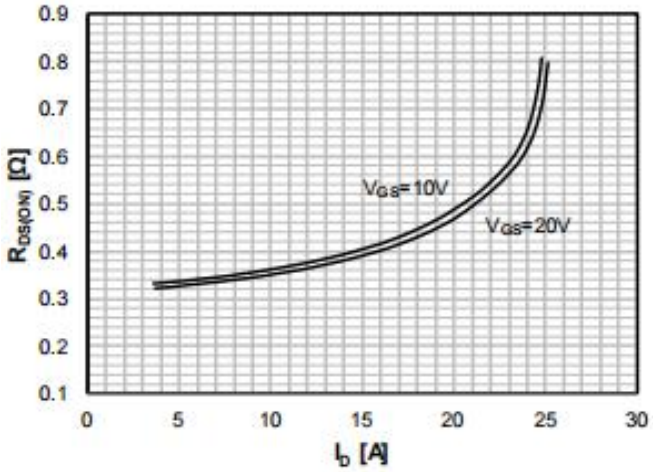


Fig. 3 On-state resistance

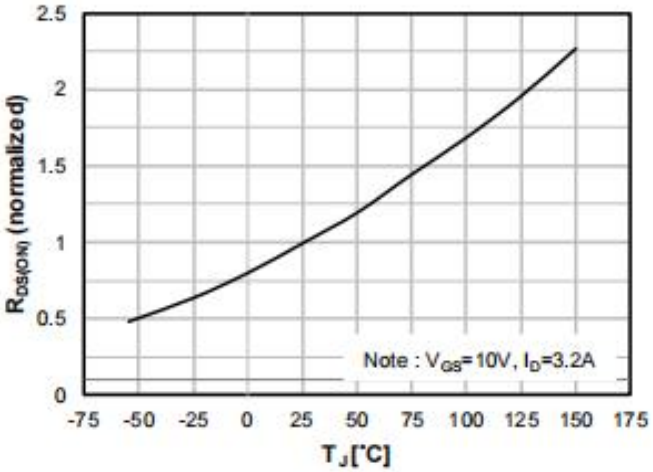


Fig. 4 On-state resistance with temperature

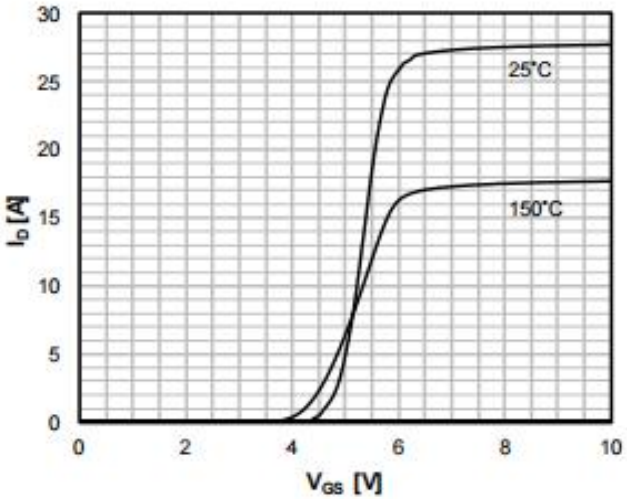


Fig 5. Transfer characteristics

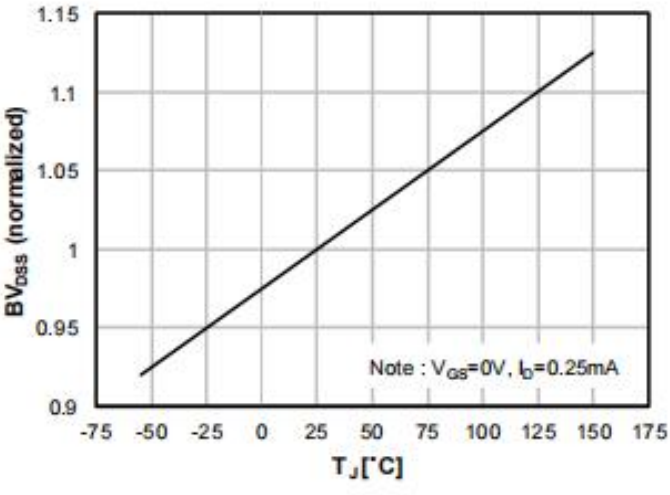


Fig 6. Breakdown voltage with temperature

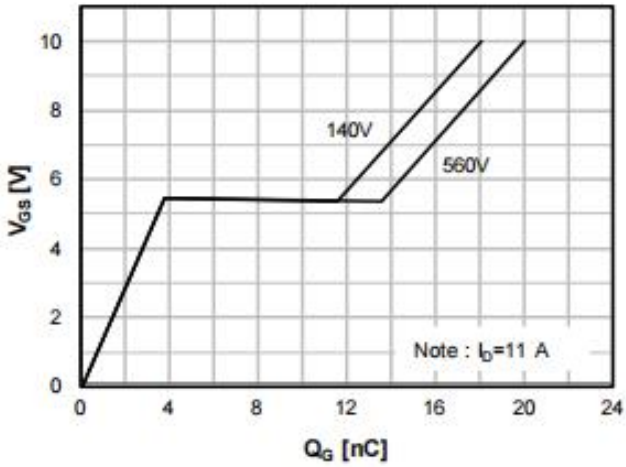


Fig 7. Gate charge

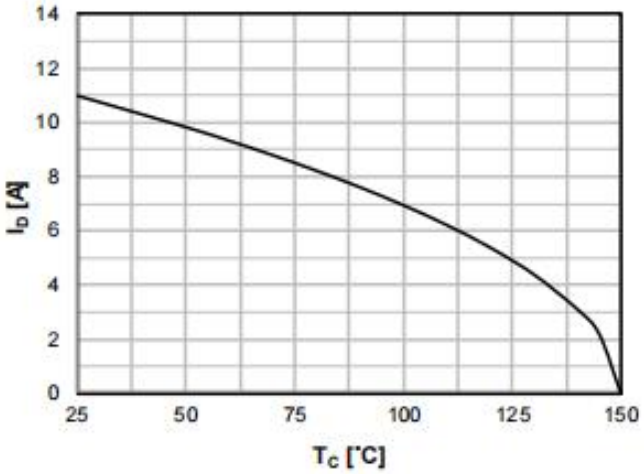


Fig 8. Maximum drain current

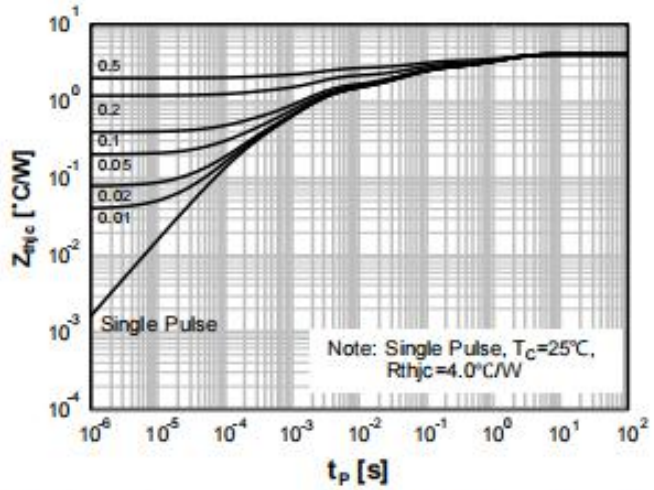


Fig 9. Maximum transient thermal characteristics

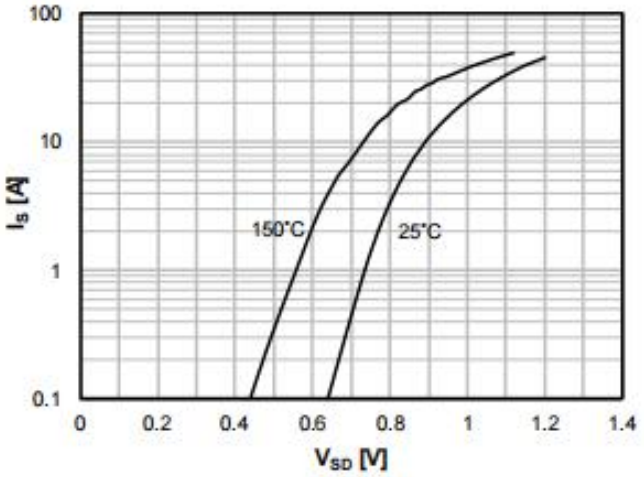


Fig 10. Body diode characteristics

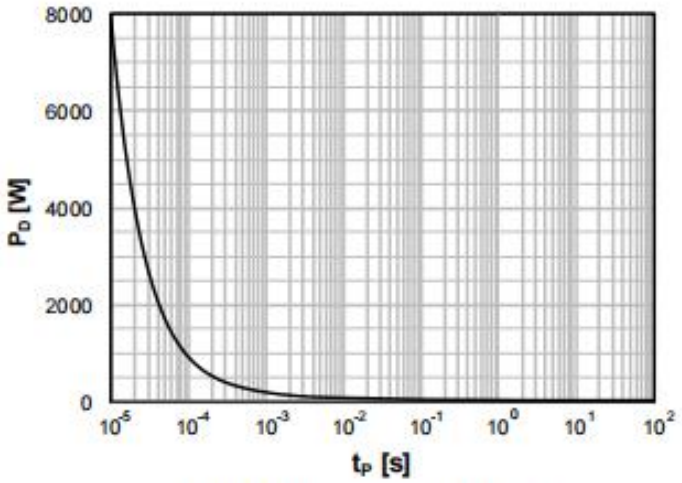


Fig 11. Power dissipation

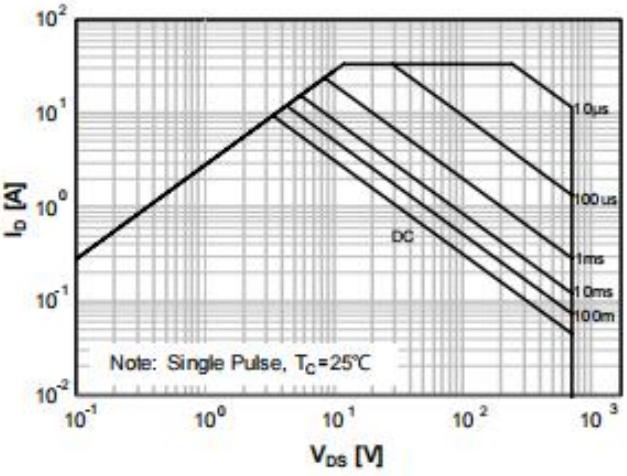


Fig 12. Safe operating area

Test Circuits and Waveforms

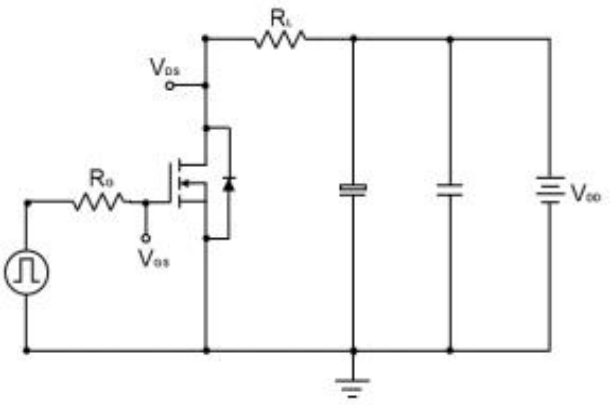


Fig 13. Test circuit for resistive load switching times

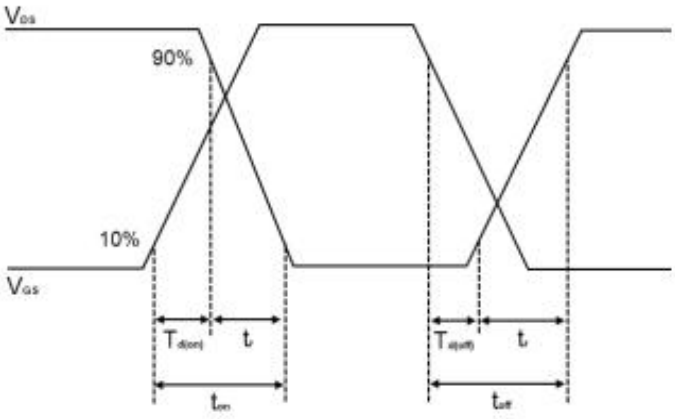


Fig 14. Switching times waveform

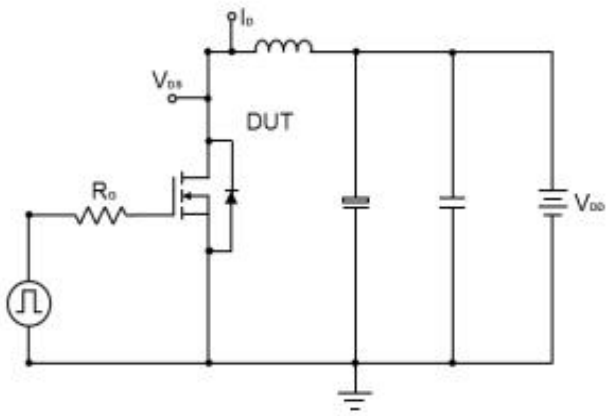


Fig 15. Test circuit for unclamped inductive load

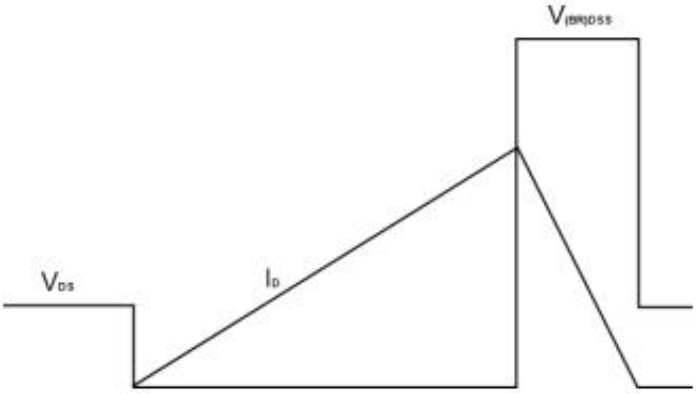


Fig 16. Unclamped inductive waveform

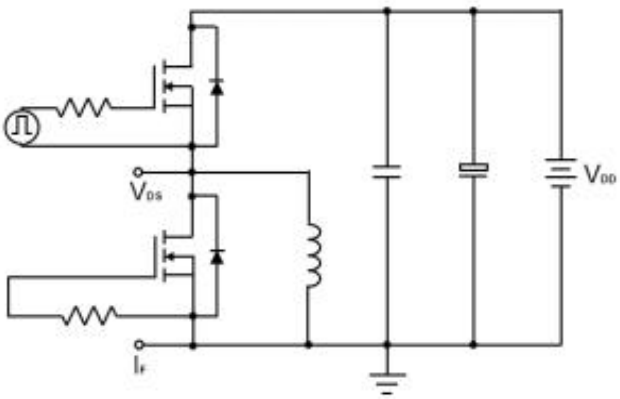


Fig 17. Test circuit for diode

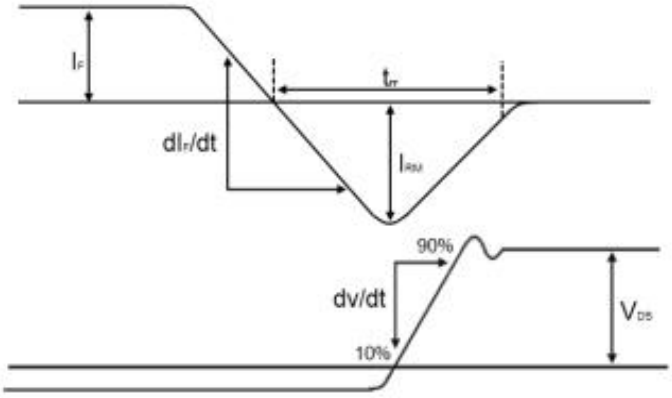
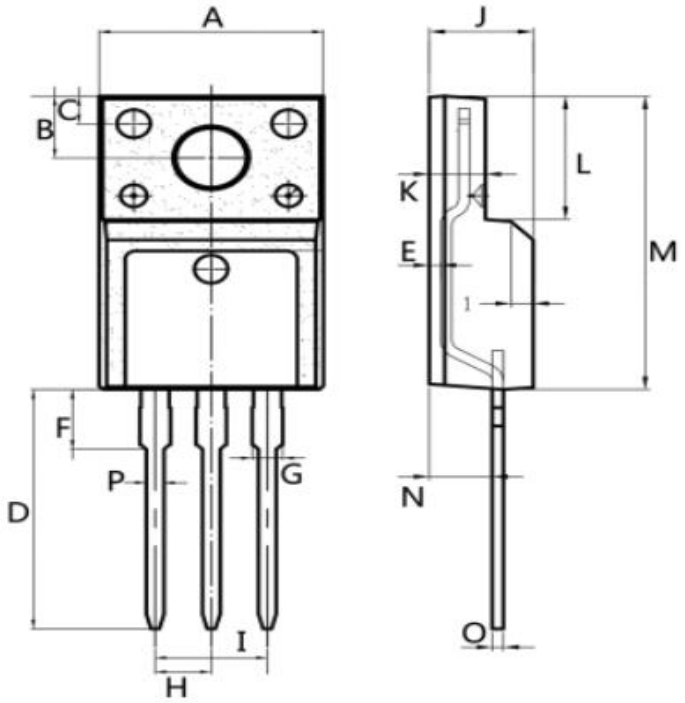


Fig 18. Diode recovery

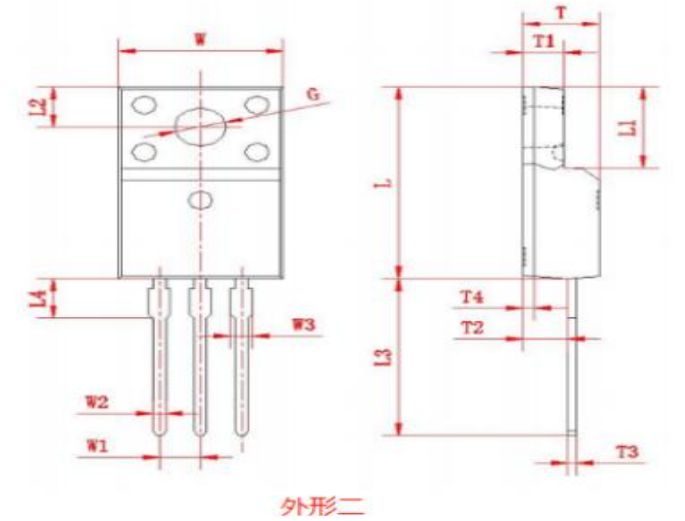
Package outline drawing(TO-220F Unit: mm)



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

Disclaimers:

Reasunos Semiconductor Technology Co.Ltd (Reasunos) reserves the right to make changes without notice in order to improve reliability,function or design and to discontinue any product or service without notice .Customers should obtain the latest relevant information before orders and should verify that such information in current and complete.All products are sold subject to Reasunos's terms and conditions supplied at the time of orderacknowledgement.

Reasunos Semiconductor Technology Co.Ltd warrants performance of its hardware products to the speciffications at the time of sale.Testing,reliability and quality control are used to the extene Reasunos deems necessary to support this warrantee. Except where agreed upon by contr- actual agreement,testing of all parameters of each product is not necessarily performed.

Reasunos Semiconductor Technology Co.Ltd does not assume any liability arising from the use of any product or circuit designs described herein.Customers are responsible for their products and applications using Reasunos's components.To minimize risk,customers must provide adequate design and operating safeguards.

Reasunos Semiconductor Technology Co.Ltd does not warrant or convey any license eith- er expressed or implied under its patent rights,nor the rights of others.Reproduction of inform- ation in Reasunos's data sheeets or data books is permissible only if reproduction is without modification oralteration.Reproduction of this information with any alteration is an unfair and deceptive business practice. Reasunos Semiconductor Technology Co.Ltd is not responsi- ble or liable for such altered documentation.

Resale of Reasunos's products with statements different from or beyond the parameters stated by Reasunos Semiconductor Technology Co.Ltd for that product or service voids all exp- ress or implied warrantees for the associated Reasunos's product or service and is unfair and deceptive business practice. Reasunos Semiconductor Technology Co.Ltd is not responsi- ble or liable for such statements.

Life Support Policy:

Reasunos Semiconductor Technology Co.Ltd's Products are not authorized for use as cri- tical components in life support devices or systems without the expressed written approval of Reasunos Semiconductor Technology Co.Ltd.

As used herein:

1. Life support devices or systems are devices or systems which: a.are intended for surgical implant into the human body, b.support or sustain life,
c.whose failuer to when properly used in accordance with instructions for used provided in the laeling,can be reasonably expected to result in significant injury to the user.

2.A critical component is any component of a life support device or system whose failure to system whose failure to perform can be reasonably expected to cause the failure of the life support device or system,or to affect its safety or effectiveness.