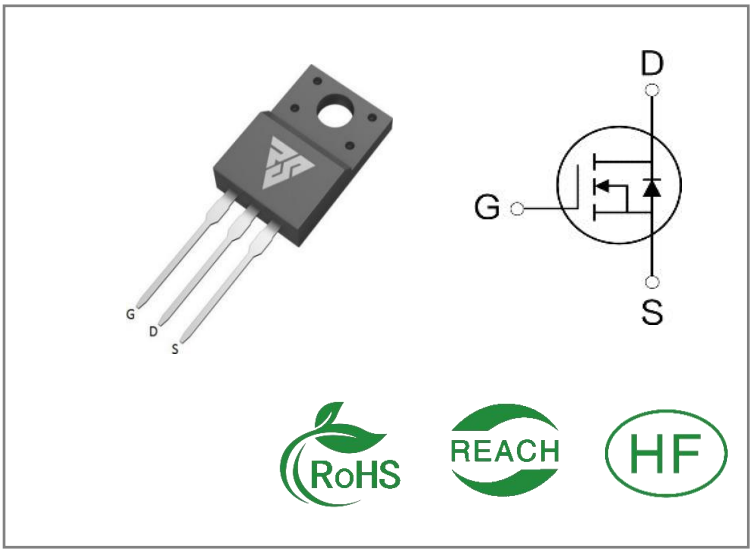
ID	R_{DS}(ON)(Typ)	VDSS
48A	58mΩ	600V



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
- Fast Recovery Time

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RSF60R070F	T0-220F	RSF60R070F	Tube	50 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RSF60R070F	Units
VDSS	Drain-to-Source Voltage	600	V
ID	Continuous Drain Current TC=25℃	48	A
ID	Continuous Drain Current TC=100℃	30	
IDM	Pulsed Drain Current (Note*1)	144	
PD	Power Dissipation	39	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Engergy L=10mH,VDS= 50V, RG = 25 Ω，TC=25℃	375	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	RSF60R070F	Units	Test Conditions
RθJC	Junction-to-Case	3.2	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃
RθJA	Junction-to-Ambient	72		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	600	--	--	V	VGS=0V,ID=1mA
IDSS	Drain- to- Source Leakage Current	--	--	10	μA	VDS=600V,VGS=0 V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	VGS=20V ,VDS=0V
	Gate- to- Source Reverse Leakage	--	--	-100		VGS=-20V ,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)	--	58	68	mΩ	VGS=10V,ID=24A
VGS(TH)	Gate Threshold Voltage	3	4	5	V	VGS=VDS,ID=1mA

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn- on Delay Time	--	32	--	nS	VDS=400V ID=24A RG=2.5Ω
trise	Rise Time	--	32	--		
td(OFF)	Turn- OFF Delay Time	--	42	--		
tfall	Fall Time	--	22.5	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	3400	--	pF	VGS=0V VDS=100V f=100kHz
Coss	Output Capacitance	--	120	--		
Crss	Reverse Transfer Capacitance	--	4.3	--		
Qg	Total Gate Charge	--	70	--	nC	VDS=480V ID=24A VGS=10V
Qgs	Gate- to- Source Charge	--	22	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	28	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	48	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	144	A	
VSD	Diode Forward Voltage	--	--	1.2	V	IS=48A,VGS=0V
trr	Reverse Recovery Time	--	200	--	nS	VR=300V IS=24A,di/dt=100A /μs
Qrr	Reverse Recovery Charge	--	1.4	--	μC	

Notes:

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

Typical Feature Curve

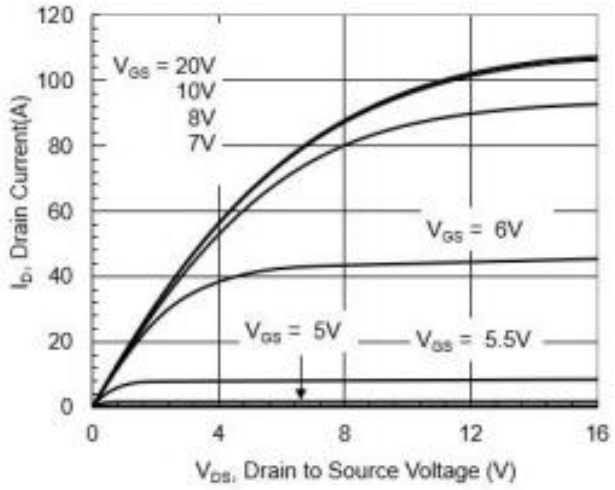


Fig1. Output characteristics T_J= 25°C

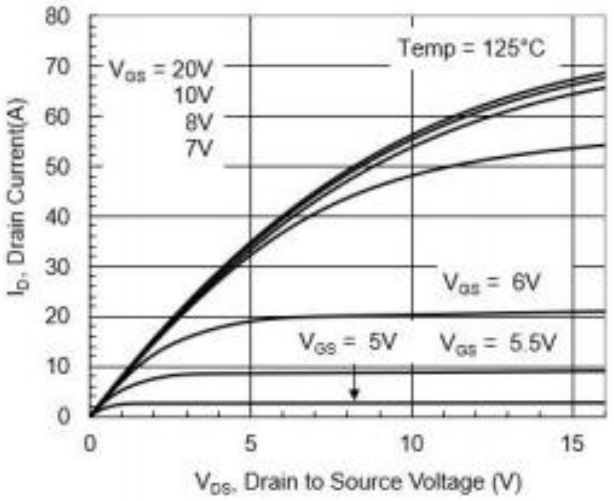


Fig2. Output characteristics T_J= 125°C

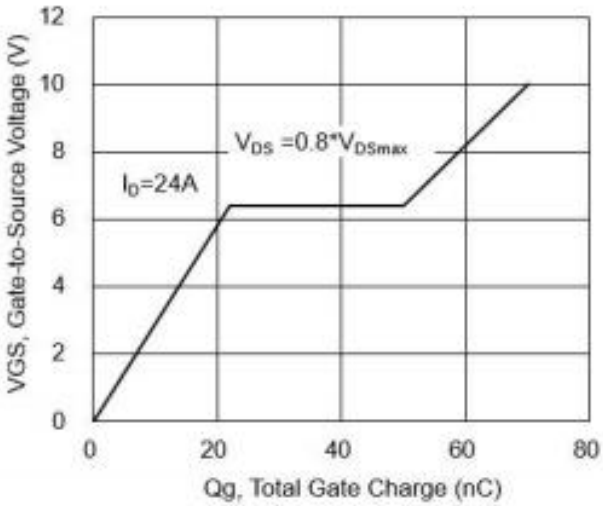


Fig3. Gate charge characteristics

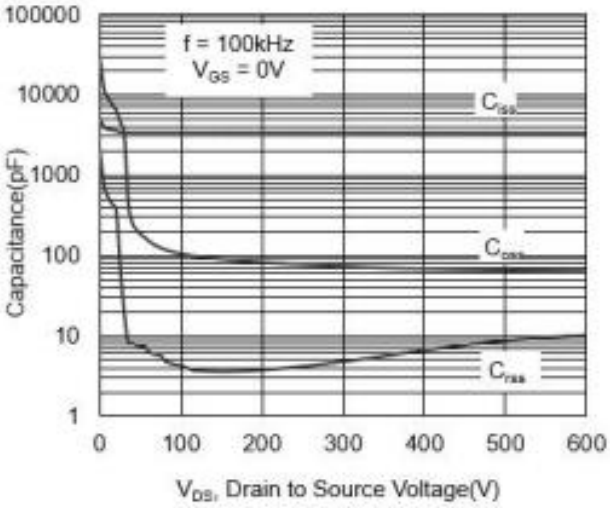


Fig 4. Capacitance Characteristics

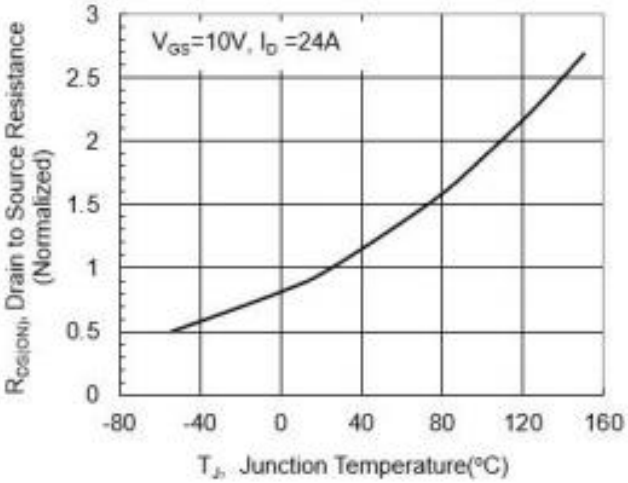


Fig 5. $R_{DS(ON)}$ vs junction temperature

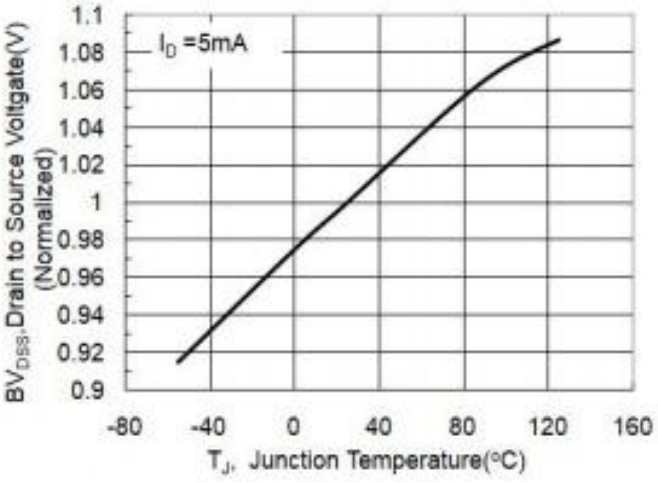


Fig 6. BV_{DSS} vs junction temperature

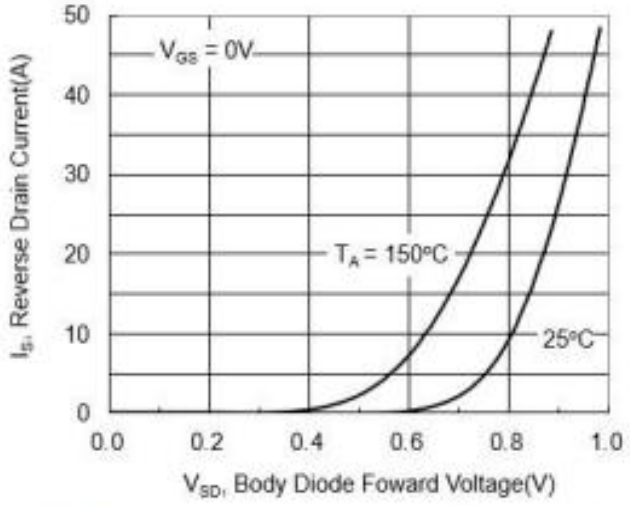


Fig 7 . Forward characteristics of reverse diode

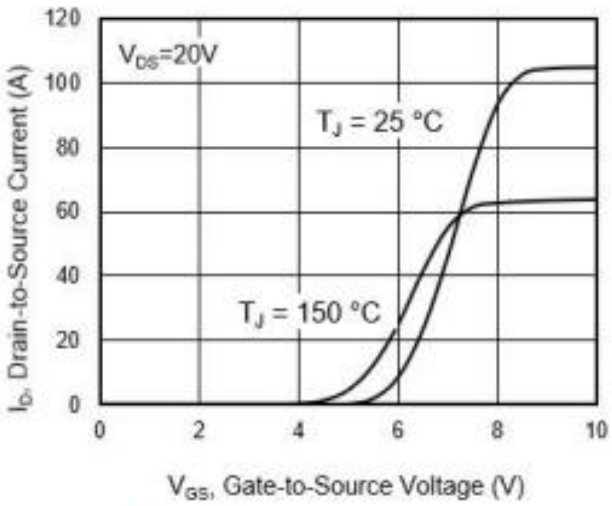


Fig 8 . Transfer characteristics

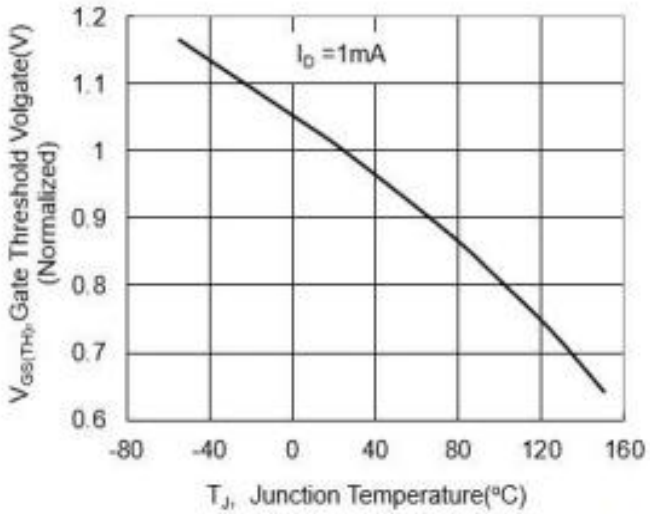


Fig 9 . $V_{GS(TH)}$ vs junction temperature

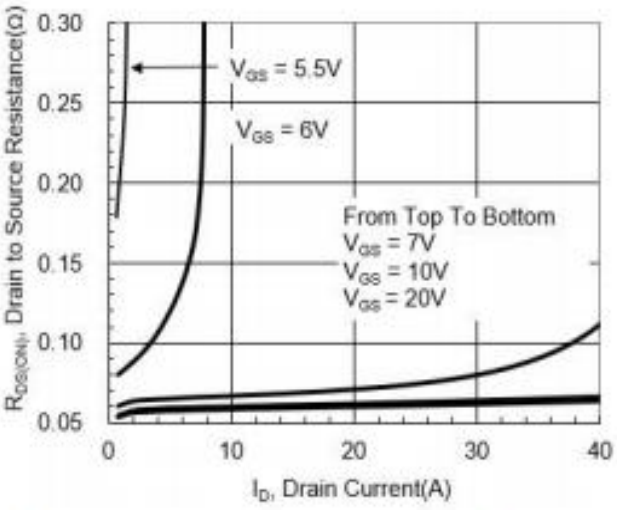


Fig 10. Drain-source on-state resistance T_J= 25°C

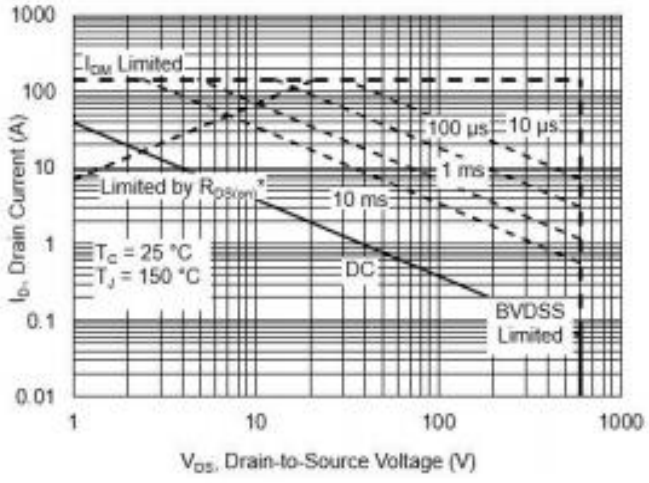


Fig 11. Safe operating area(TO-220F) Tc= 25°C

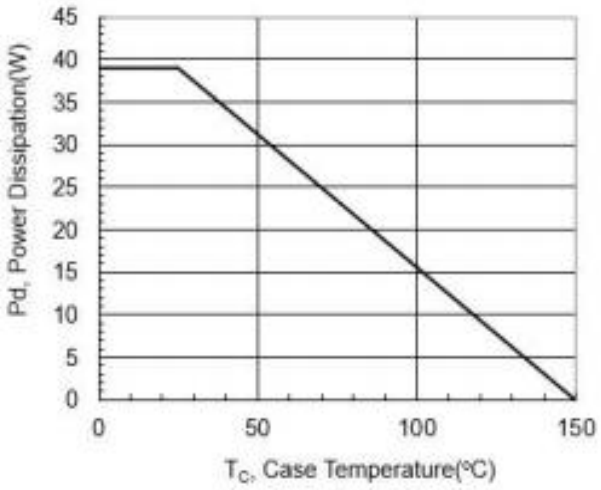


Fig 12 . Power dissipation

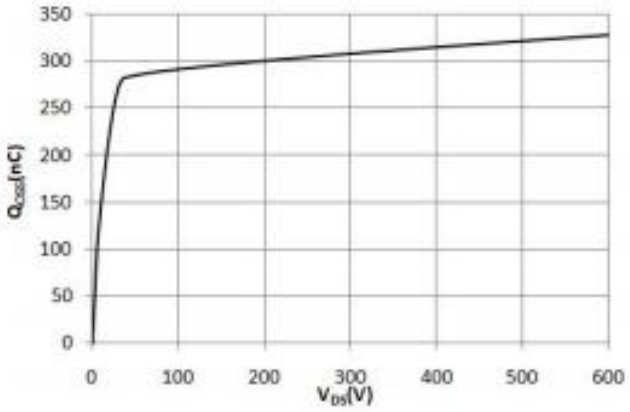


Fig 13 . Qoss vs Drain-Source Voltage

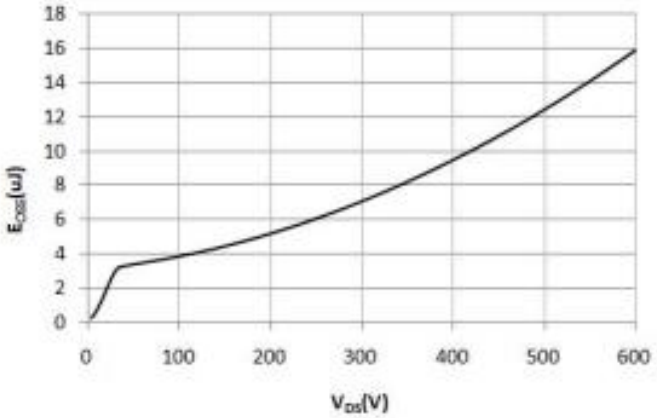


Fig 14 . Eoss vs Drain-Source Voltage

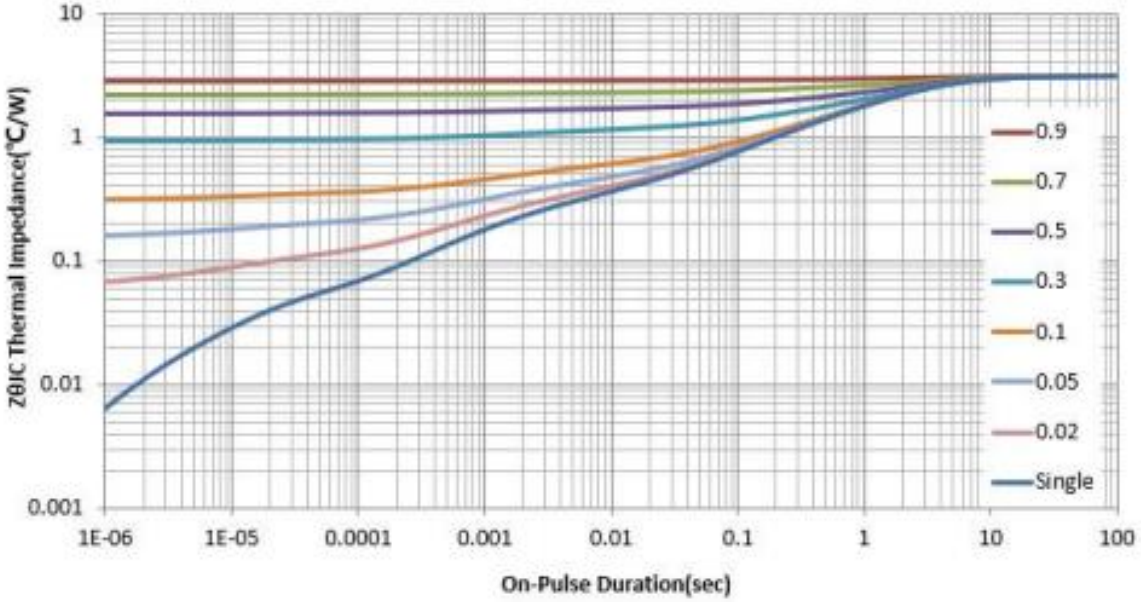


Fig 15. Transient thermal impedance

Test Circuits and Waveforms

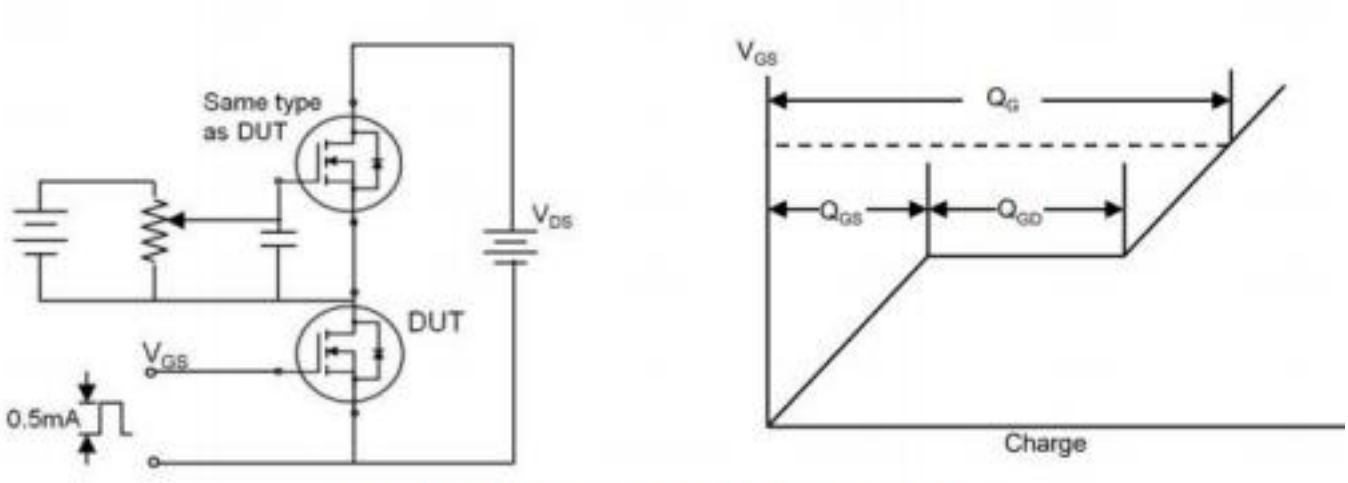


Fig 16. Gate charge test circuit & waveform

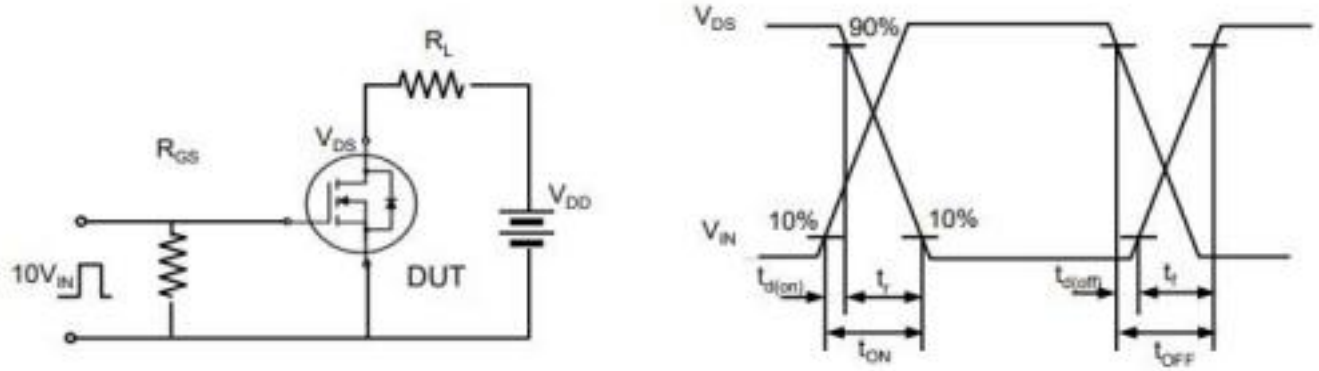


Fig 17. Switching time test circuit & waveform

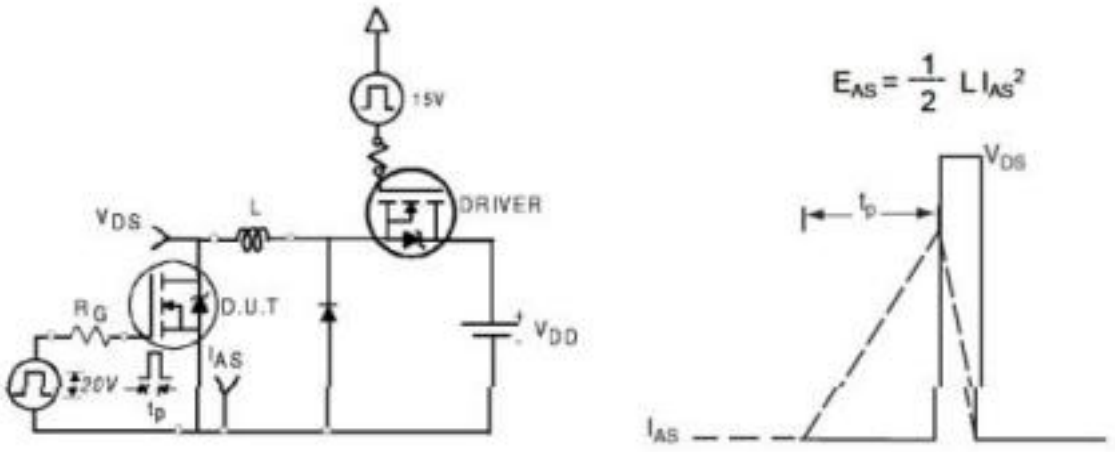
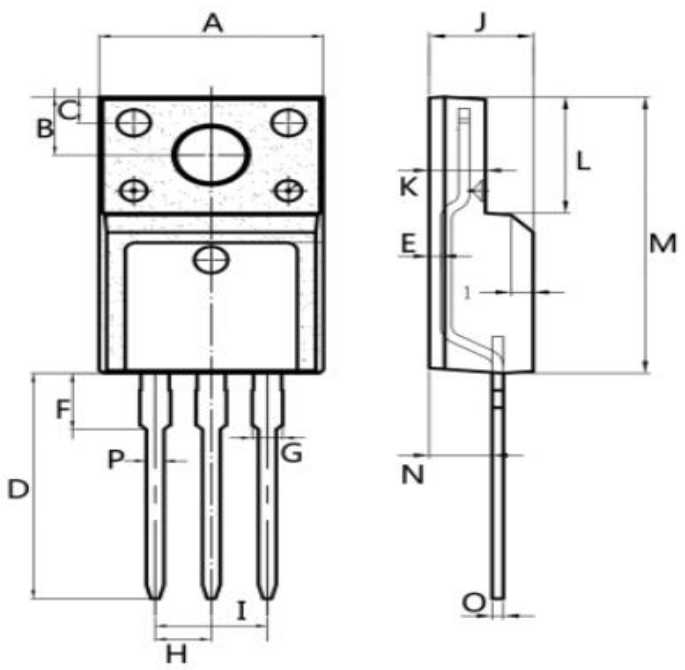


Fig 18. Unclamped Inductive switching test circuit & waveform

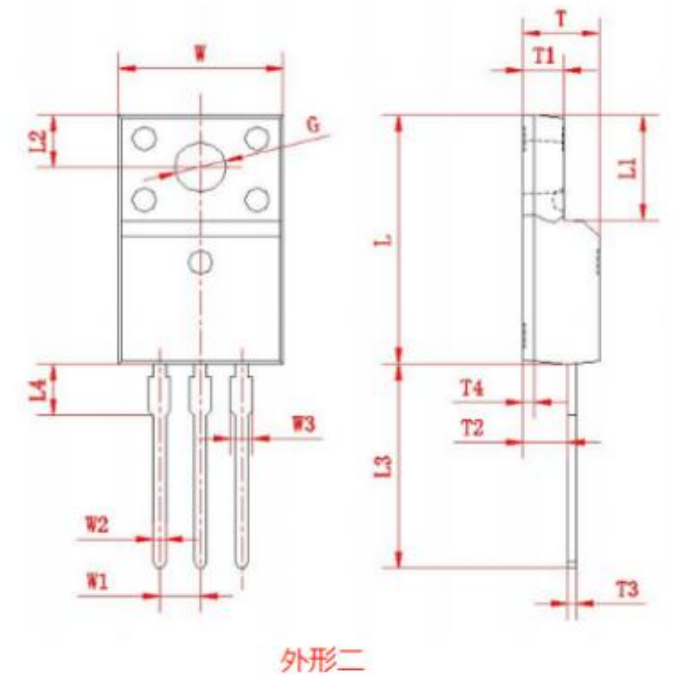
Package outline drawing(TO-220F Unit: mm)



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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