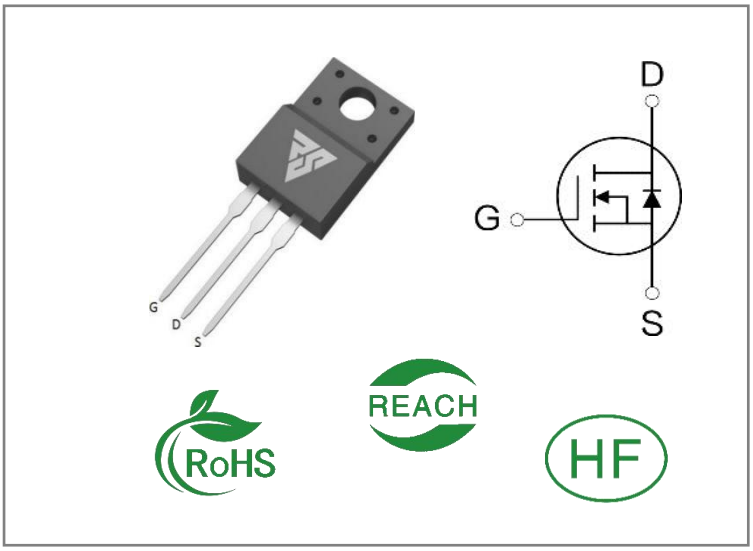
ID	R_{DS}(ON)(Typ)	VDSS
7A	1.1Ω	650V



Applications:

- High efficiency mode power supplies
- Electronic lamp ballasts
- UPS

Features:

- Low Crss
- Low gate charge
- Fast switching
- Improved ESD capability
- Improved dv/dt capability
- 100% avalanche energy test

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RS7N65HF	TO-220F	RS7N65HF	Tube	50 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS7N65HF	Units
VDSS	Drain-to-Source Voltage	650	V
ID	Continuous Drain Current TC=25℃ Continuous Drain Current TC=100℃	7* 4*	A
IDM	Pulsed Drain Current (note 1)	25	
PD	Power Dissipation	48	W
PD(DF)	PowerDissipationDeratingFactor	0.38	W/℃
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Engergy (note 2)	245	mJ
IAR	AvalancheCurrent (note 1)	7.0	A
EAR	RepetitiveAvalancheEnergy (note 1)	14.5	mJ
dv/dt	Peak Diode Recovery (note 3)	4.5	V/ns
TL	Maximum Temperature for Soldering	300	℃
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	RS7N65HF	Units	Test Conditions
RθJC	Junction-to-Case	2.6	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃
RθJA	Junction-to-Ambient	62.5		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=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 TJ=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain- to- Source On-Resistance	--	1.1	1.4	Ω	VGS=10V ID=3.5A
VGS (TH)	Gate Threshold Voltage	2	--	4	V	VGS=VDS ID=250μA
Gfs	ForwardTransconductance (note 4)	--	4	--	S	VDS=40V ID=3.5A

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn- on Delay Time	--	42	83	nS	VDS=325V ID=7A RG=25Ω (note 4,5)
trise	Rise Time	--	95	185		
td(OFF)	Turn- OFF Delay Time	--	150	285		
tfall	Fall Time	--	95	190		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	1221	1850	pF	VGS=0V VDS=25V f=1.0MHz
Coss	Output Capacitance	--	99	205		
Crss	Reverse Transfer Capacitance	--	10	18		
Qg	Total Gate Charge	--	43	64	nC	VDS=520V ID=7A VGS=10V (note 4,5)
Qgs	Gate- to- Source Charge	--	7.5	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	24	--		
RG	Gate Resistance	--	3.3	--	Ω	VDS=0V VGS=0V f=1.0MHz

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	7	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	25	A	
VSD	Diode Forward Voltage	--	--	1.4	V	IS=7A,VGS=0V
trr	Reverse Recovery Time	--	415	--	nS	VGS=0V IS=7A di/dt=100A/μs (note 4)
Qrr	Reverse Recovery Charge	--	4.3	--	μC	

Notes:

1：Pulse width limited by maximum junction temperature 2：L=10mH, IAS=7A, VDD=50V, RG=25Ω, Starting TJ=25℃

3：ISD ≤7A, di/dt ≤300A/μs, VDD≤BVDSS, Starting TJ=25℃

4：Pulse Test: Pulse Width ≤300μs, Duty Cycle≤2%

5：Essentially independent of operating temperature

Typical Feature Curve

Fig. 1 On-State Characteristics

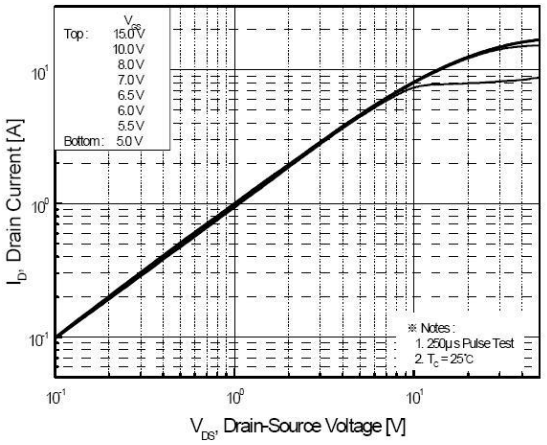


Fig. 2 Transfer Characteristics

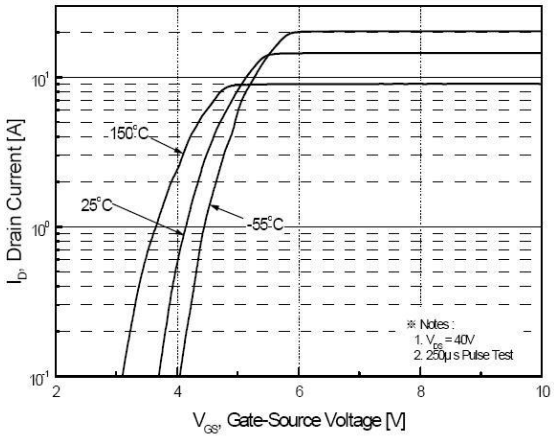


Fig.3 Breakdown Voltage Variation vs Temperature

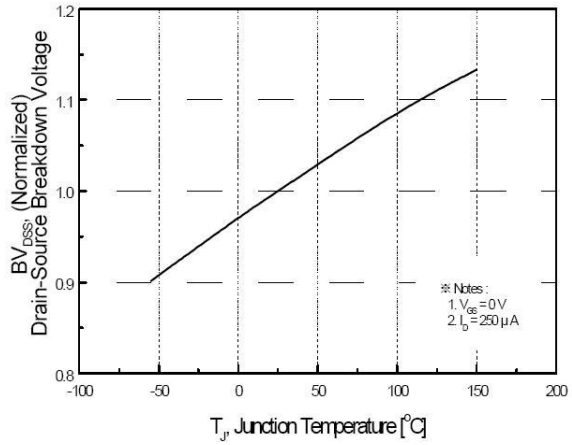


Fig. 4 On-Resistance Variation vs Temperature

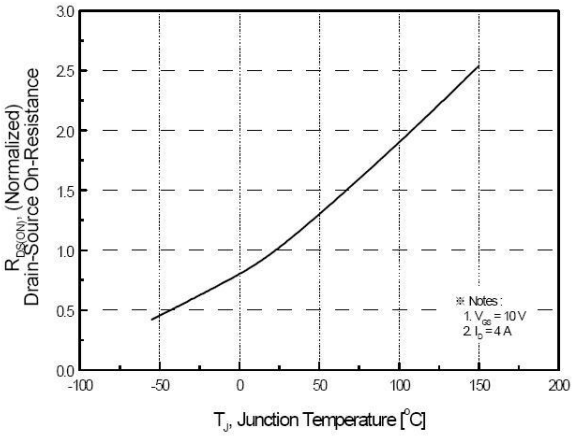


Fig. 5 Capacitance Characteristics

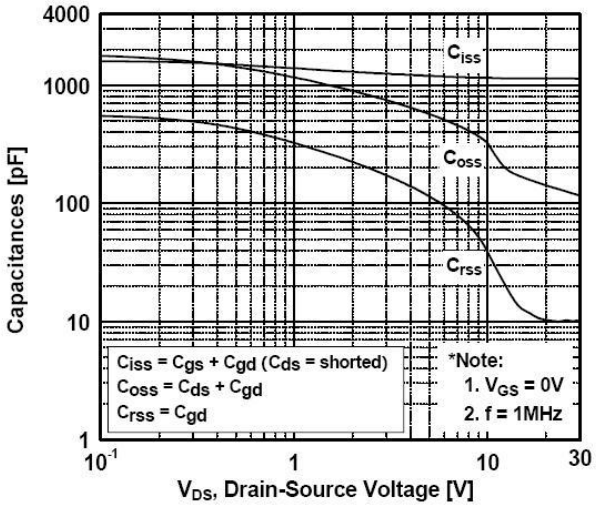
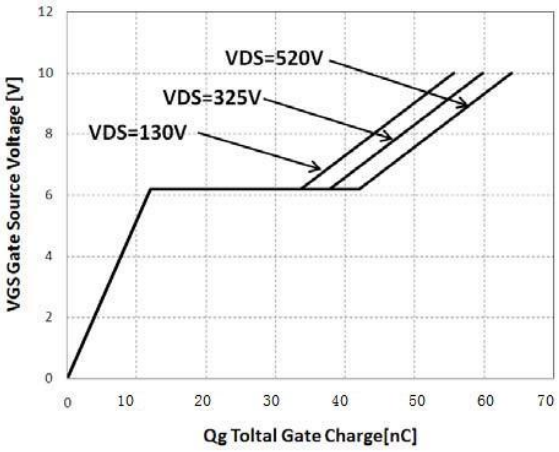


Fig. 6 Gate Charge Characteristics



Typical Feature Curve

Fig.7 Maximum Safe Operating Area

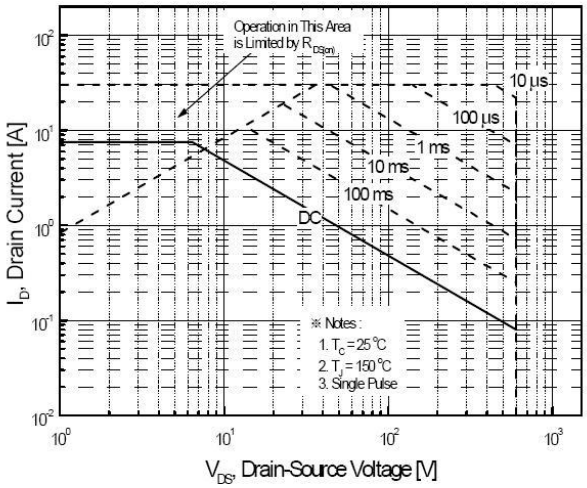


Fig. 8 Maximum Drain Current vs Case Temperature

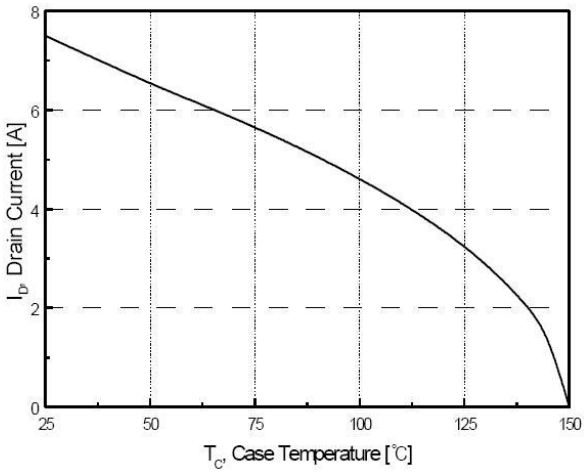
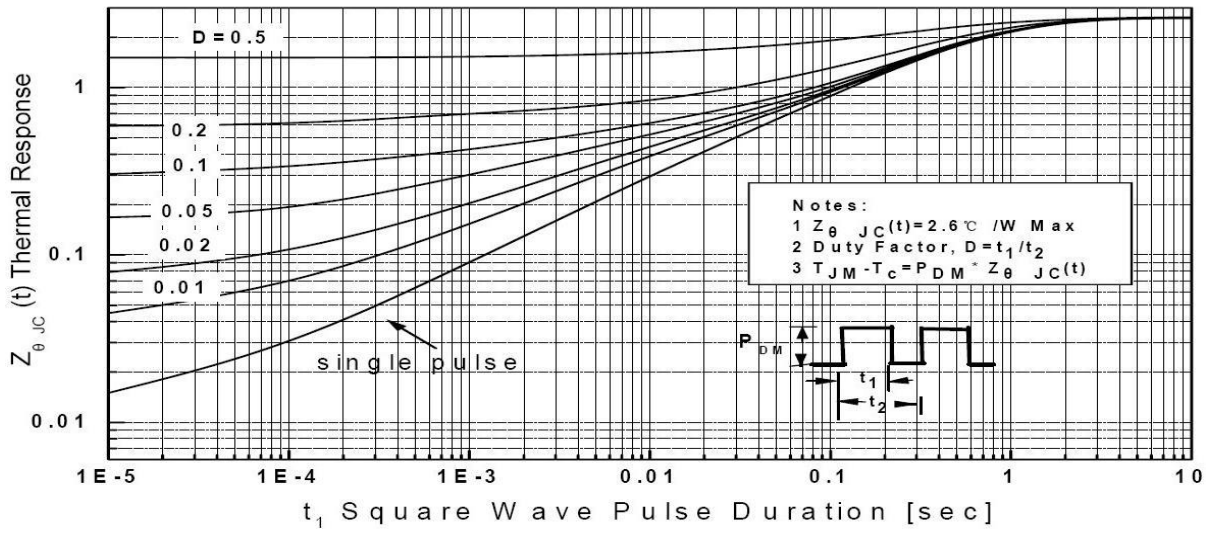
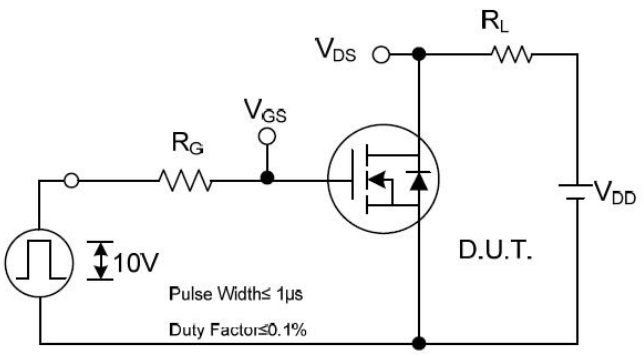
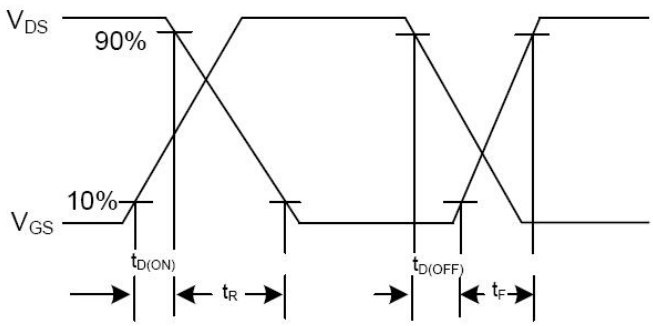


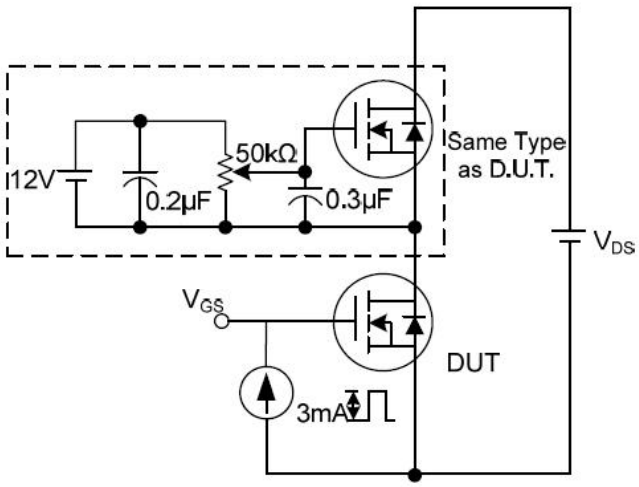
Fig. 9 Transient Thermal Response Curve

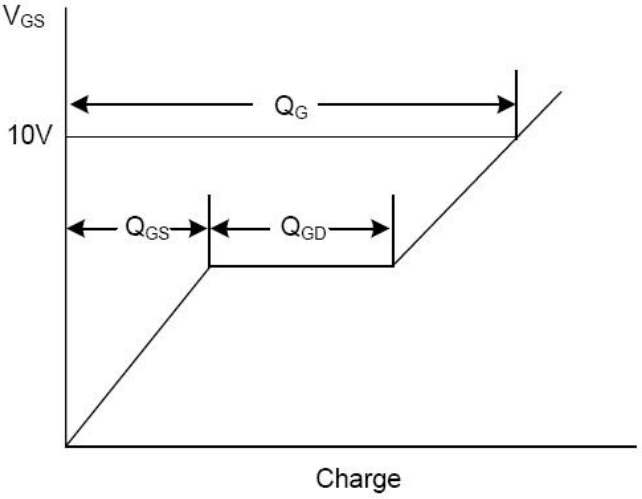


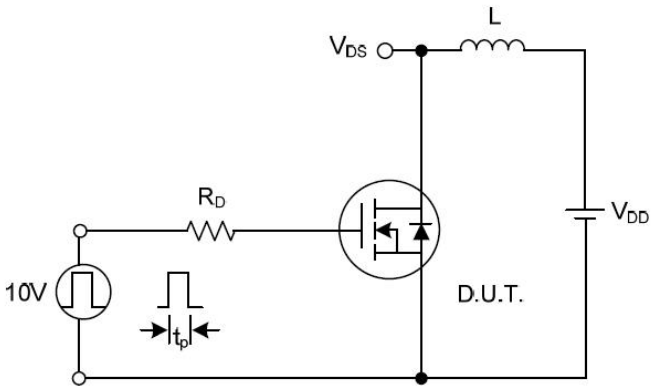
Test Circuits and Waveforms

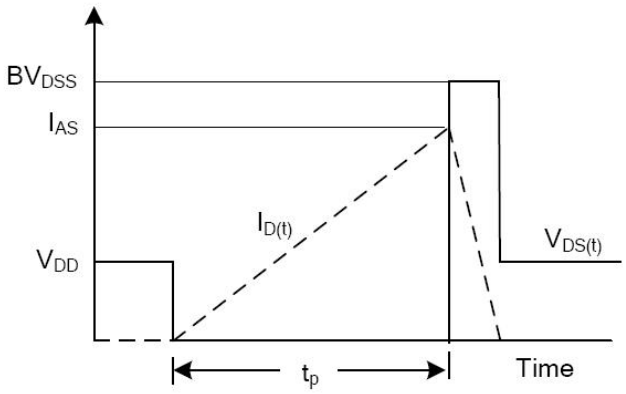




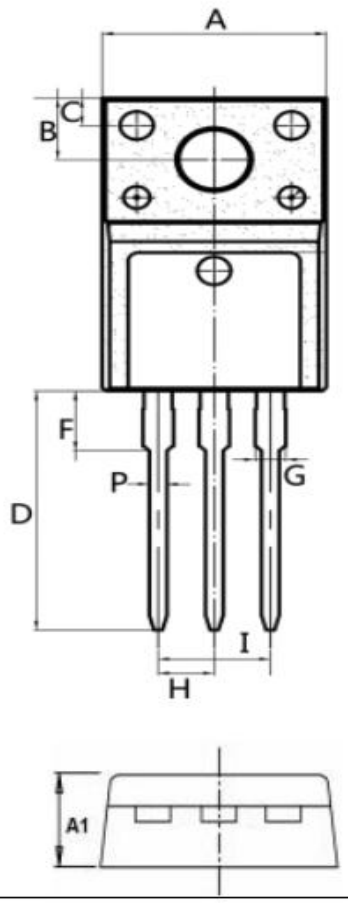




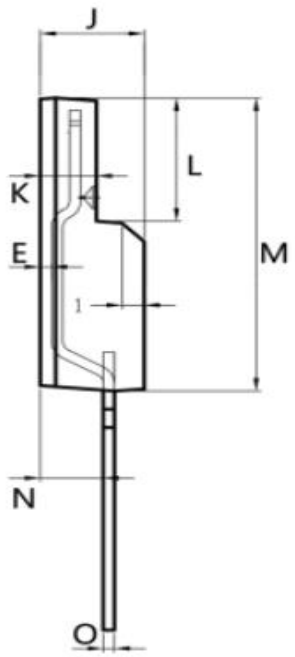




Package outline drawing(TO-220F Unit: mm)

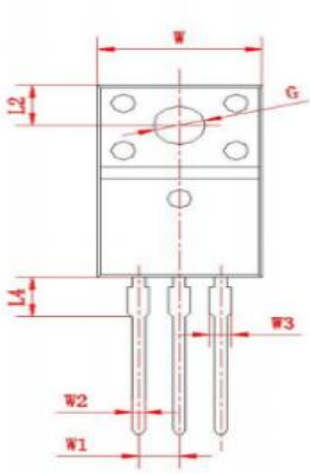


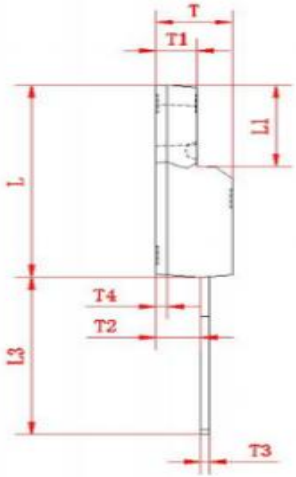
外形一



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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