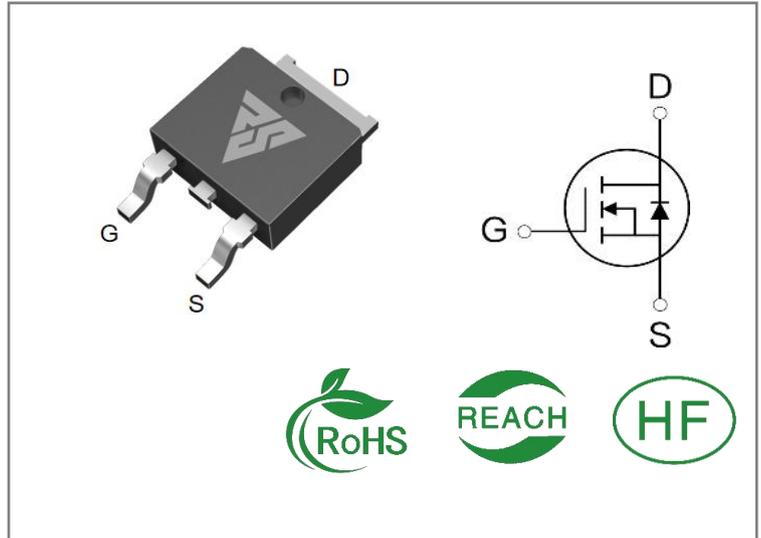


ID	$R_{DS(ON)}$ (Typ)	VDSS
5A	1.8Ω	650V


Applications:

- High efficiency switch
- 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.
RS5N65D	T0-252	RS5N65D	Tape&reel	2500 PCS

Absolute Maximum Ratings Tc= 25°C unless otherwise specified

Symbol	Parameter	RS5N65D	Units
VDSS	Drain-to-Source Voltage	650	V
ID	Continuous Drain Current TC=25°C	5	A
	Continuous Drain Current TC=100°C	2.5	
IDM	Pulsed Drain Current (Note*1)	20	
PD	Power Dissipation	90	W
VGS	Gate- to- Source Voltage	±30	V
IAR	Avalanche Current	5	A
EAS	Single Pulse Avalanche Energy L = 18mH, IAS=5A,VDD = 50V, RG = 25 Ω	105	mJ
Dv/dt	Peak Diode Recovery ISD≤5A, dv/dt≤300A/μs	4.5	V/ns
TL TPKG	Maximum Temperature for Soldering	300	°C
TJ, TSTG	Operating Junction and Storage Temperature Range	-55 to 150	°C

* 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	RS5N65D	Units	Test Conditions
R θ JC	Junction-to-Case	1.27	$^{\circ}\text{C} / \text{W}$	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 $^{\circ}\text{C}$
R θ JA	Junction-to- Ambient	62.5		1 cubic foot chamber,free air.

OFF Characteristics T_J= 25 $^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	650	--	--	V	VGS=0V,ID=250 μA
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 T_J=25 $^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain- to- Source On-Resistance(Note*2)	--	1.8	2.4	Ω	VGS=10V ID=2.5A
VGS(TH)	Gate Threshold Voltage	2.0	--	4.0	V	VGS=VDS ID=250 μA

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn- on Delay Time	--	18	45	nS	VDS=325V ID=5A RG=25 Ω
trise	Rise Time	--	50	115		
td(OFF)	Turn- OFF Delay Time	--	51	112		
tfall	Fall Time	--	39	88		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	520	780	pF	VGS=0V VDS=25V f=1.0MHz
Coss	Output Capacitance	--	58	72		
Crss	Reverse Transfer Capacitance	--	5	13		
Qg	Total Gate Charge	--	16	21	nC	VDS=520V ID=5A VGS=10V
Qgs	Gate- to- Source Charge	--	3.0	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	7.2	--		

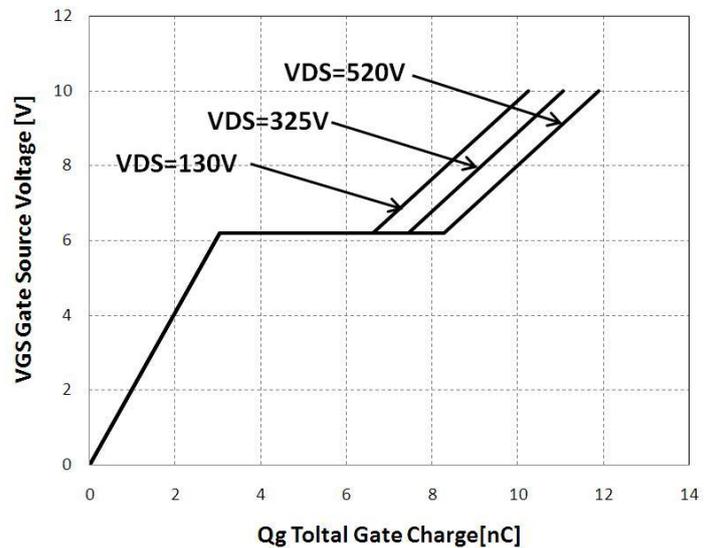
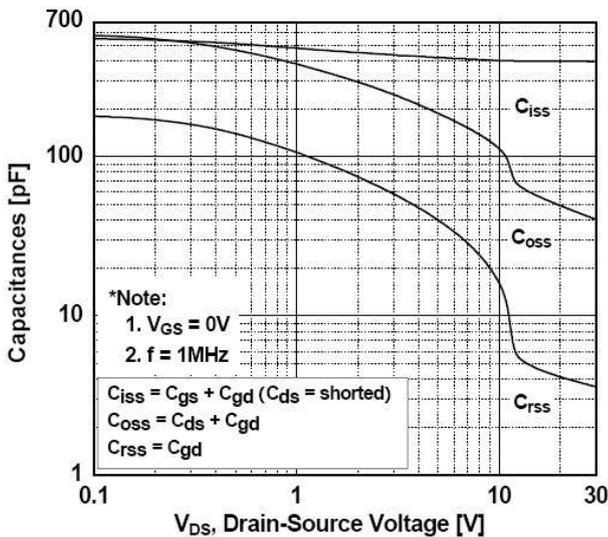
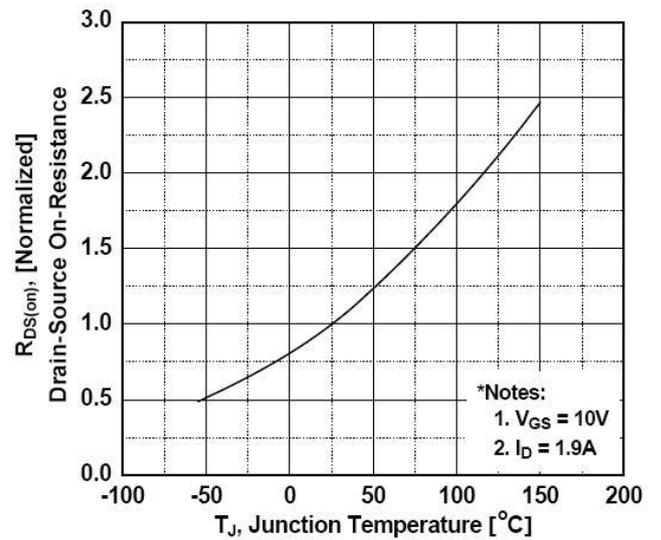
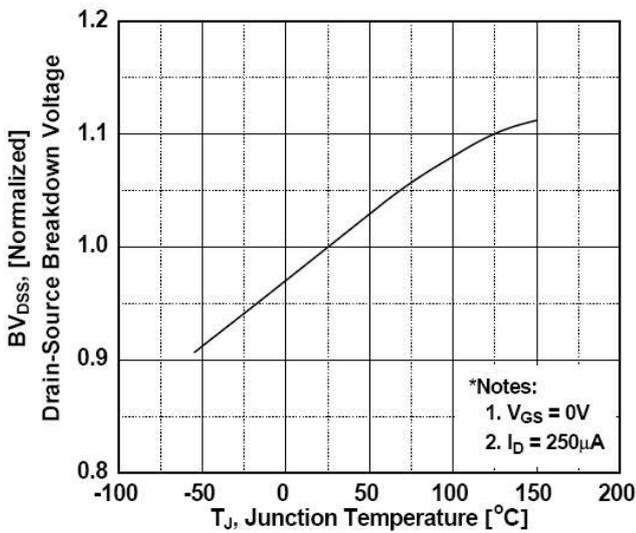
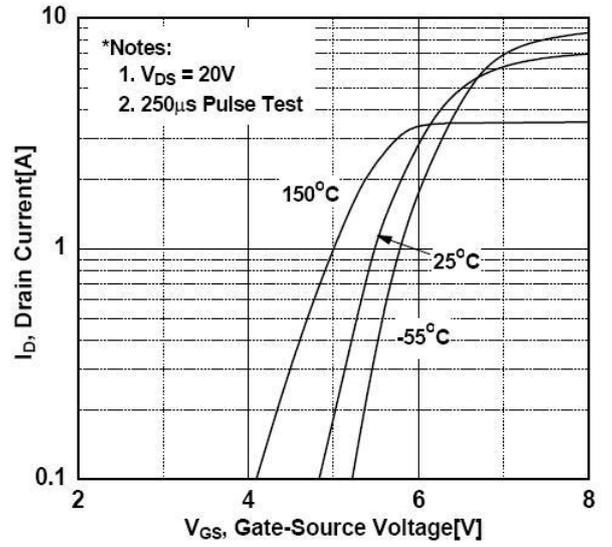
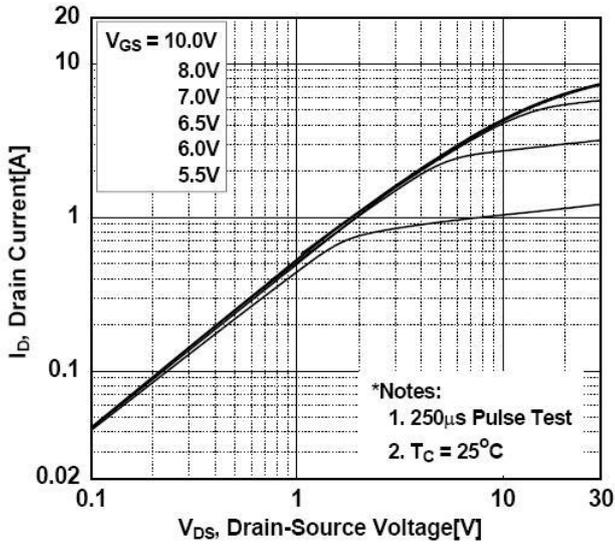
Source- Drain Diode Characteristics

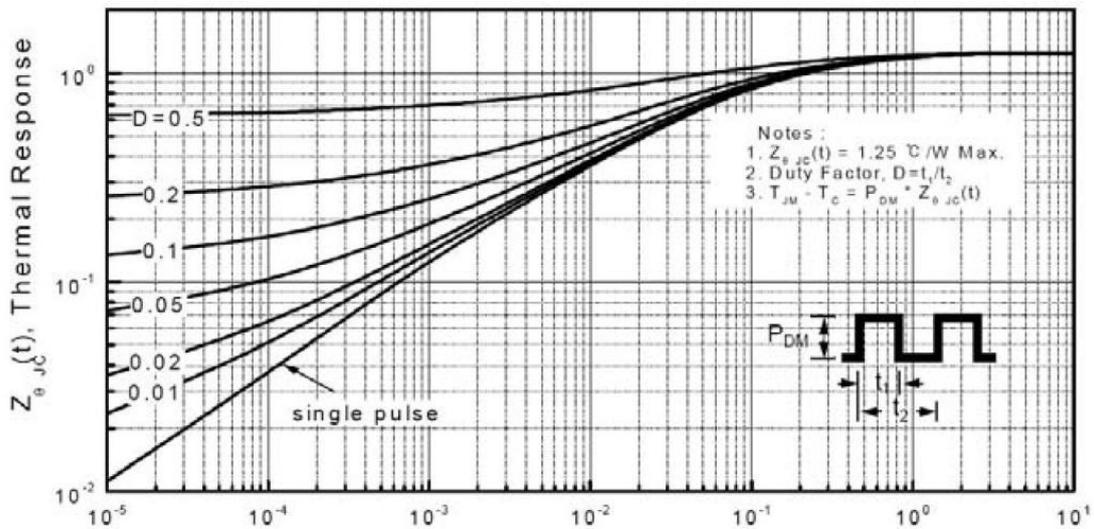
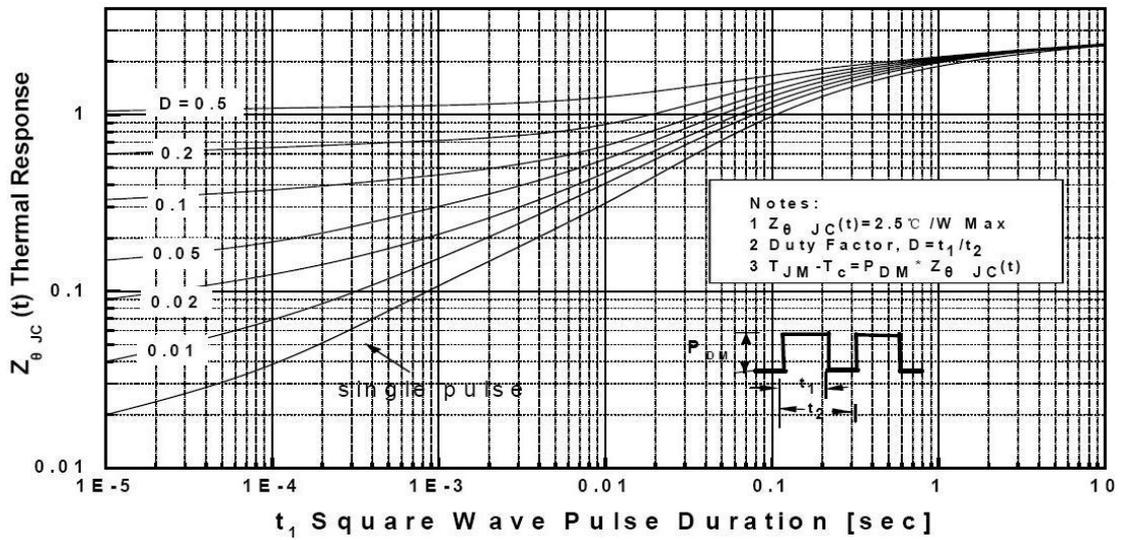
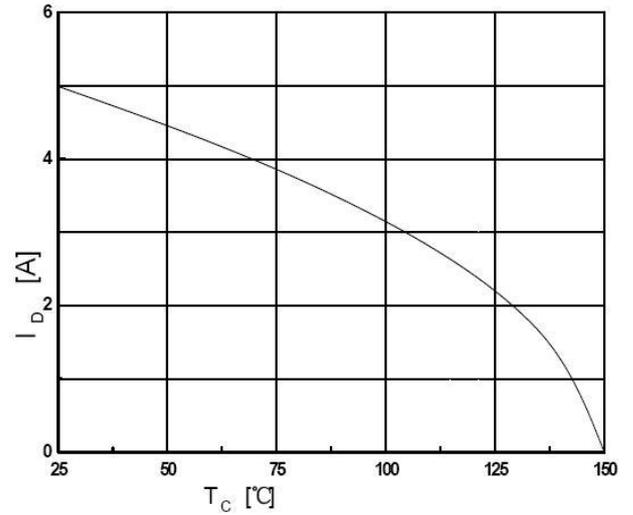
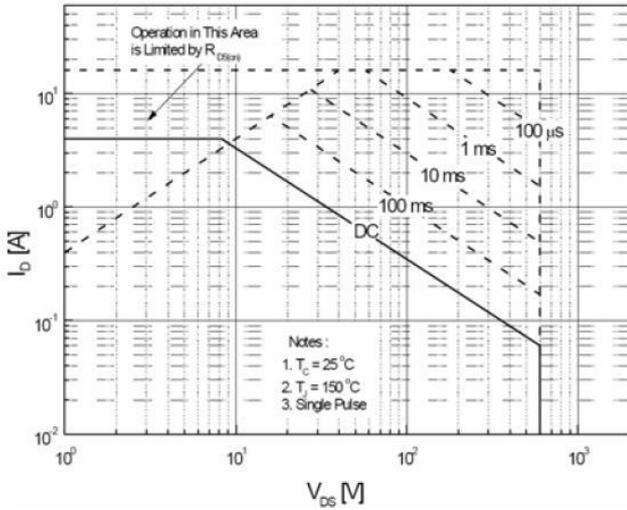
Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	5	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	20	A	
VSD	Diode Forward Voltage	--	--	1.4	V	IS=5A,VGS=0V
trr	Reverse Recovery Time	--	340	--	nS	VGS=0V IS=5A di/dt=100A/μs
Qrr	Reverse Recovery Charge	--	2.7	--	μC	

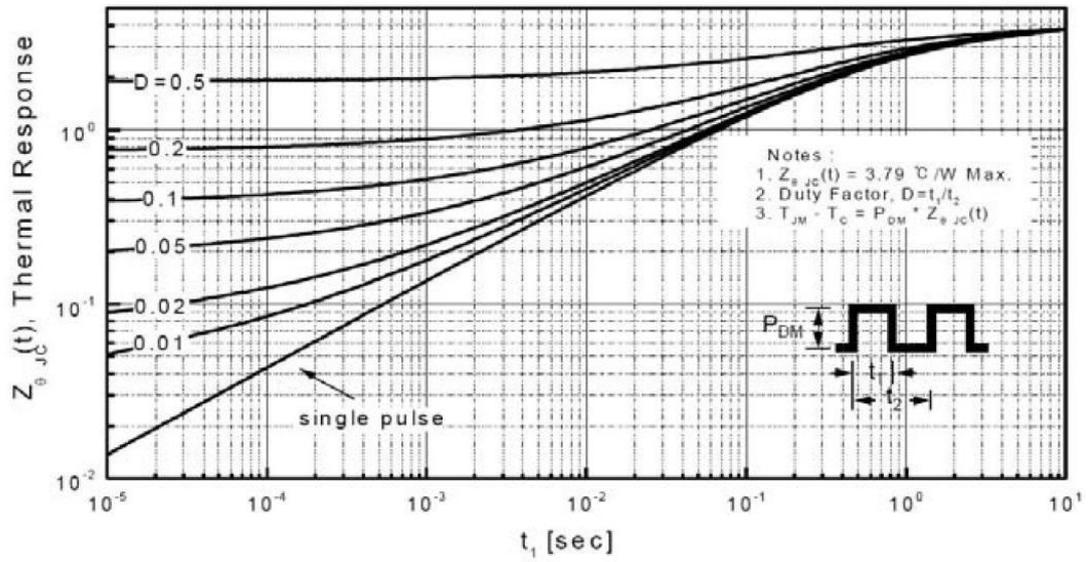
Notes:

- * 1. Repetitive rating, pulse width limited by maximum junction temperature.
- * 2. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

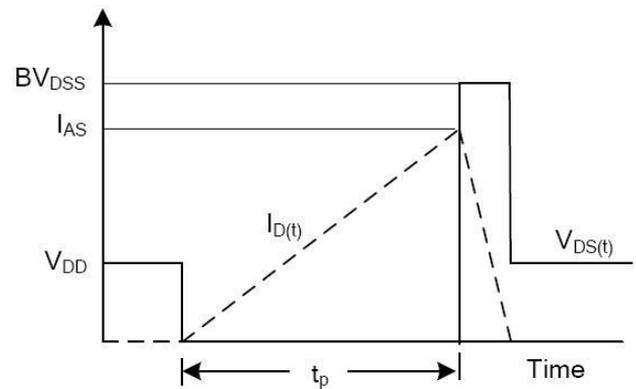
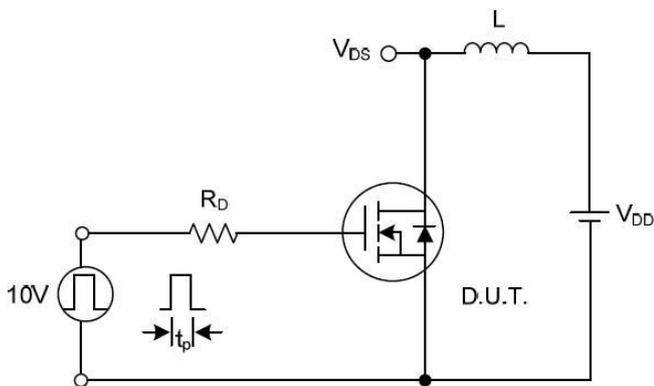
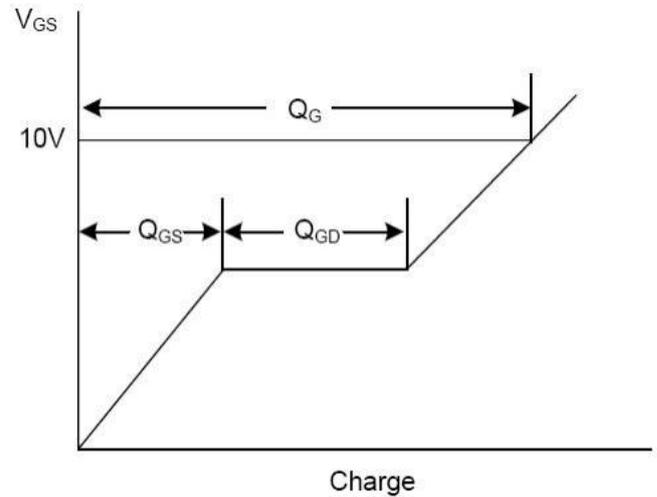
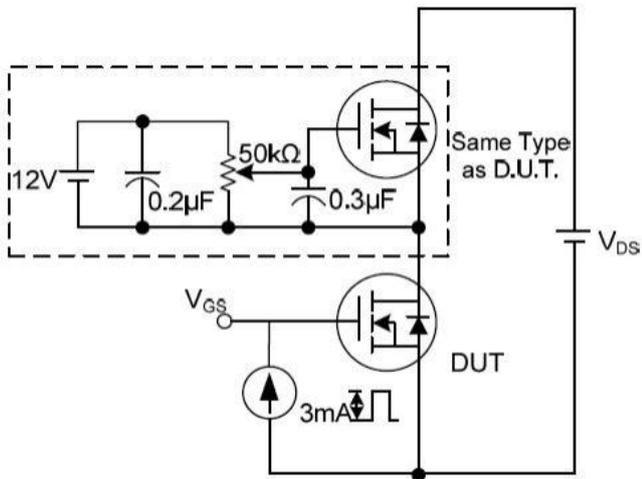
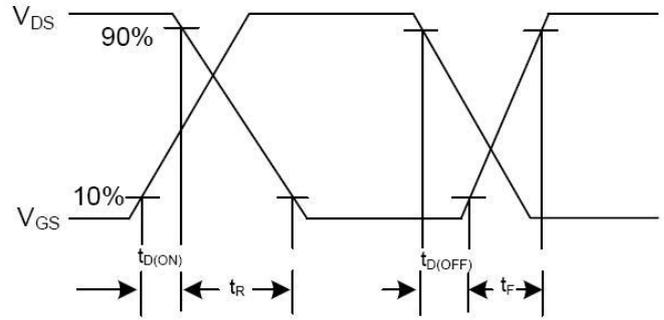
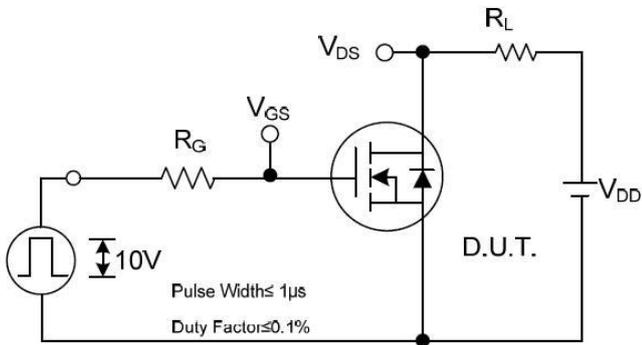
Typical Feature Curve



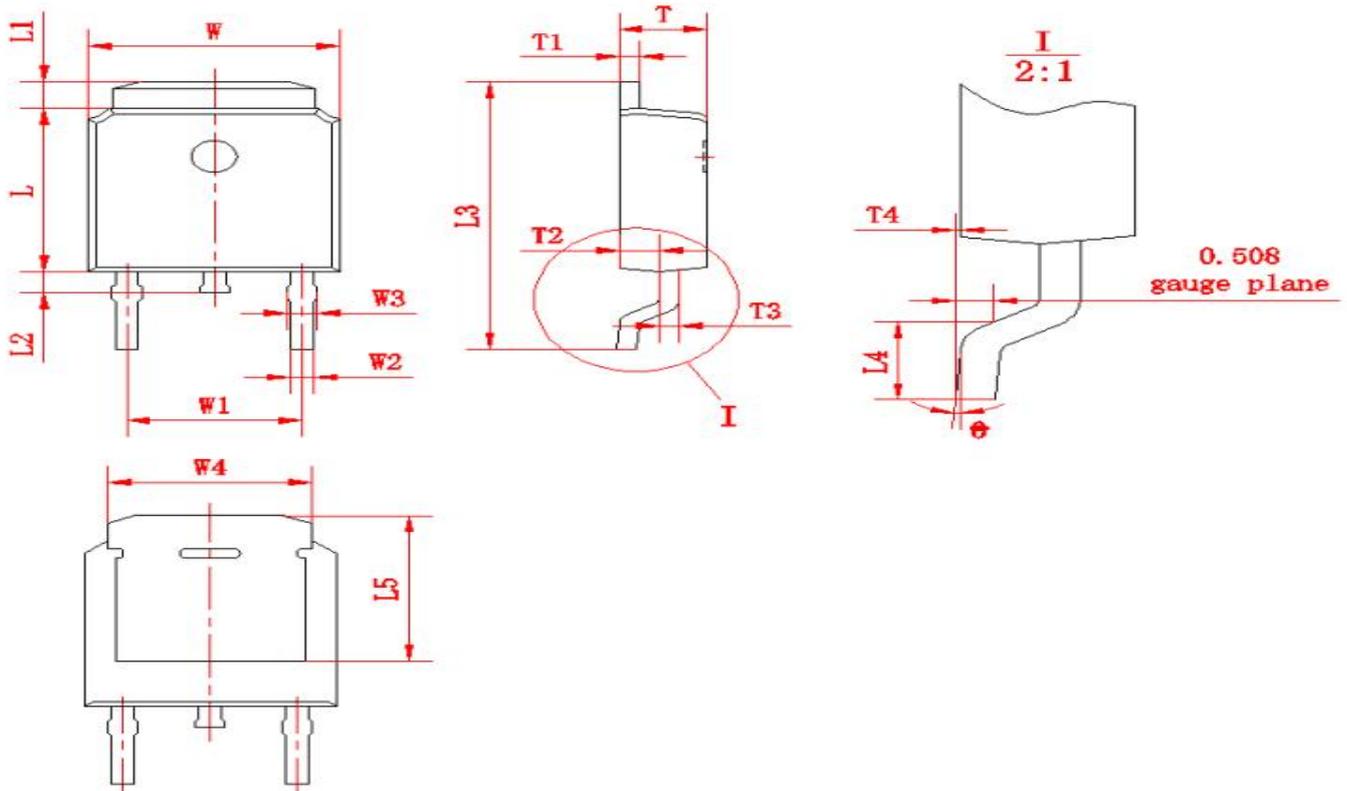




Test Circuits and Waveforms



Package outline drawing(TO-252 Unit: mm)



符号	尺寸		符号	尺寸		符号	尺寸	
	Min	Max		Min	Max		Min	Max
W	6.50	6.70	L1	0.80	1.20	T1	0.48	0.58
W1	(4.572)		L2	0.60	1.00	T2	0.95	1.15
W2	0.6	0.8	L3	9.70	10.30	T3	0.48	0.58
W3	0.68	0.88	L4	1.30	1.70	T4	0.00	0.12
W4	(5.3)		L5	(5.20)		Ø	0	8
L	6.00	6.20	T	2.20	2.40			

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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.

