

**30V,150A
N-Channel Mosfet**

FEATURES

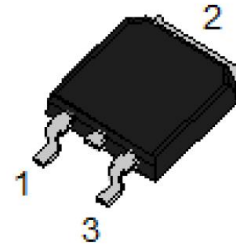
$R_{DS(ON)} \leq 2.6m\Omega$ @VGS=10V

$R_{DS(ON)} \leq 3.4m\Omega$ @VGS=4.5V

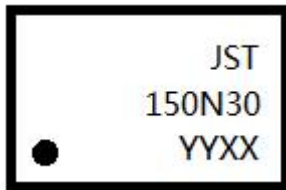
Simple Drive Requirement

Low On-resistance

TO-252

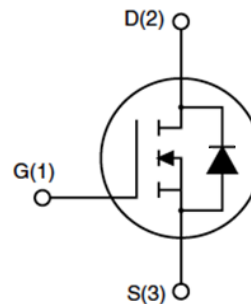


MARKING



YYXX 代表生产年周

N-CHANNEL MOSFET



Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

Symbol	Parameter		Max.	Units
			TO-252-4R	
V _{DSS}	Drain-Source Voltage		30	V
V _{GSS}	Gate-Source Voltage		±20	V
I _D	Continuous Drain Current	T _C = 25°C	150	A
		T _C = 100°C	105	A
I _{DM}	Pulsed Drain Current ^{note1}		600	A
E _{AS}	Single Pulsed Avalanche Energy ^{note2}		180	mJ
P _D	Power Dissipation	T _C = 25°C	130	W
R _{θJC}	Thermal Resistance, Junction to Case		1.15	°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient		62	
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to +175	°C

Electrical Characteristics ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	1	uA
		$V_{DS}=24V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	10	
I_{GSS}	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.6	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note3</small>	$V_{GS}=10V, I_D=30A$	-	1.8	2.6	m Ω
		$V_{GS}=4.5V, I_D=15A$	-	2.4	3.4	
g_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=15A$	-	48	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1.0\text{MHz}$	-	4800	-	pF
C_{oss}	Output Capacitance		-	735	-	pF
C_{rSS}	Reverse Transfer Capacitance		-	420	-	pF
Q_g	Total Gate Charge	$V_{DS}=15V, I_D=24A, V_{GS}=4.5V$	-	40	-	nC
Q_{gs}	Gate-Source Charge		-	6	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	19	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DS}=15V, I_D=1A, R_{GEN}=1\Omega, V_{GS}=10V$	-	20	-	ns
t_r	Turn-on Rise Time		-	32	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	75	-	ns
t_f	Turn-off Fall Time		-	28	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	150	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	600	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=30A$	-	-	1.2	V
t_{rr}	Body Diode Reverse Recovery Time	$I_S=1A, di/dt=100A/\mu s$	-	49	85	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	18	35	nC

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition: $T_J=25^\circ\text{C}, V_{DD}=25V, V_{GS}=10V, L=0.1\text{mH}, I_{AS}=60A, R_G=25\Omega$

3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Typical Performance Characteristics

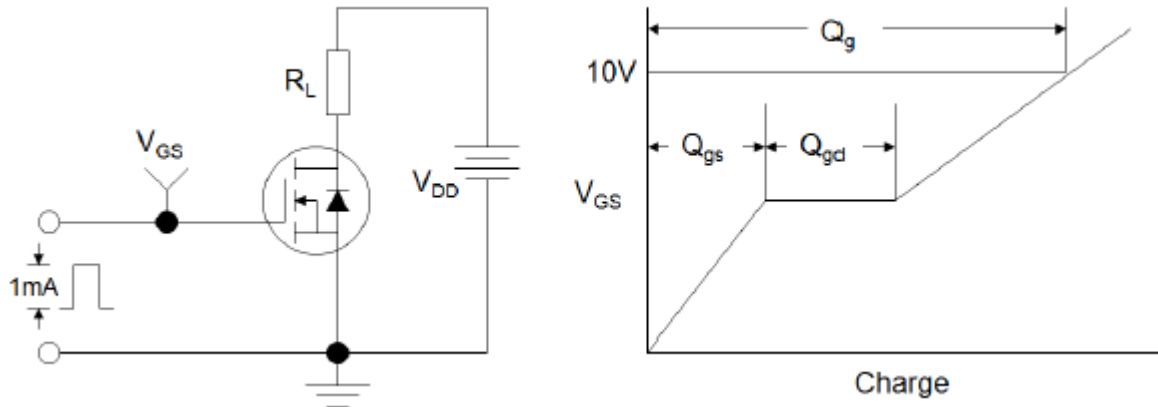


Figure1:Gate Charge Test Circuit & Waveform

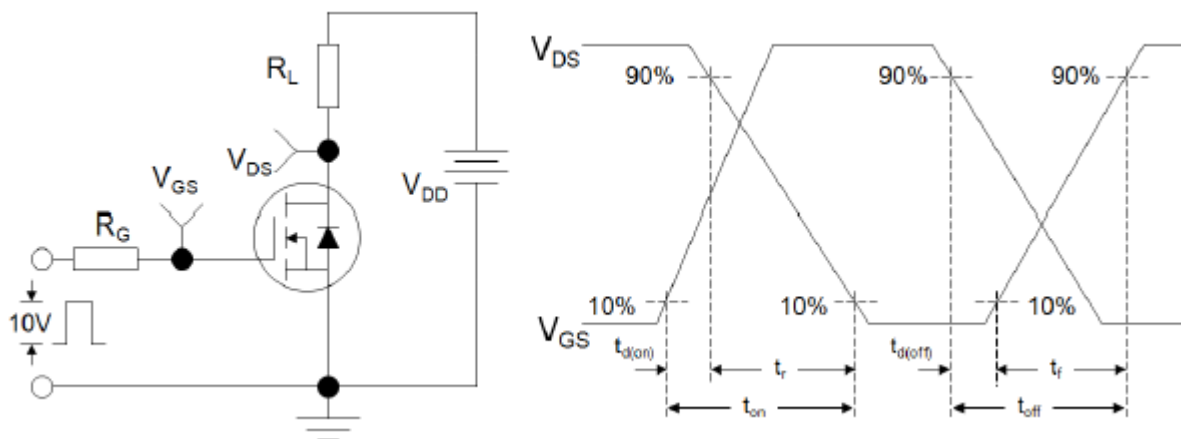


Figure 2: Resistive Switching Test Circuit & Waveforms

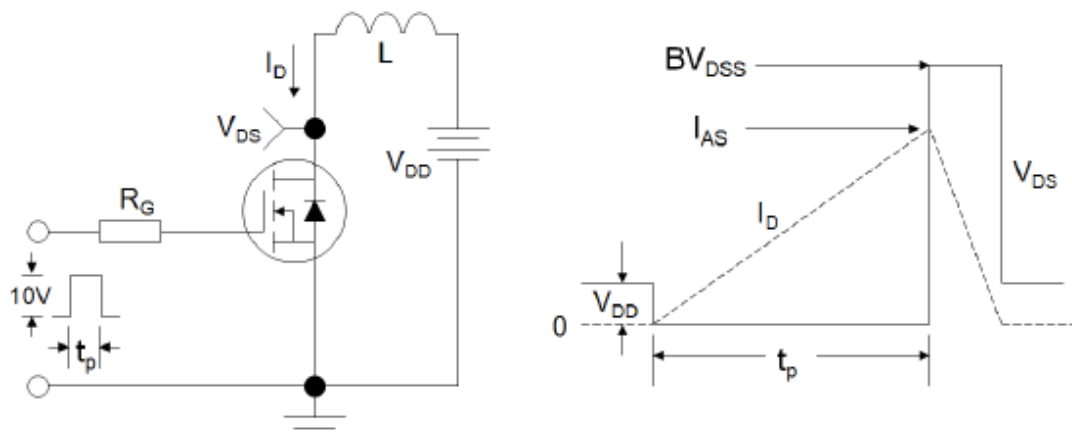


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

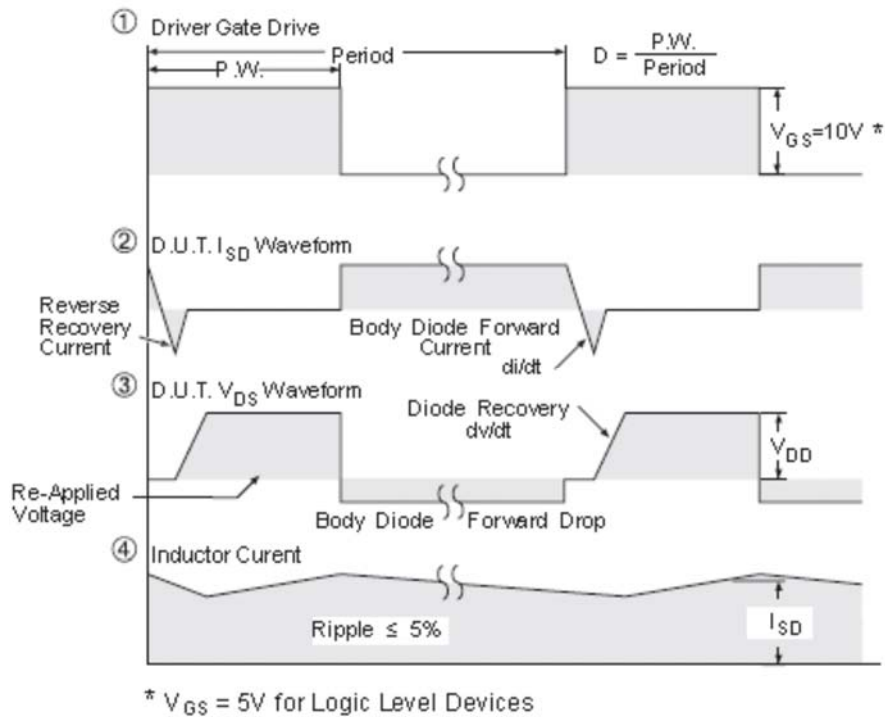
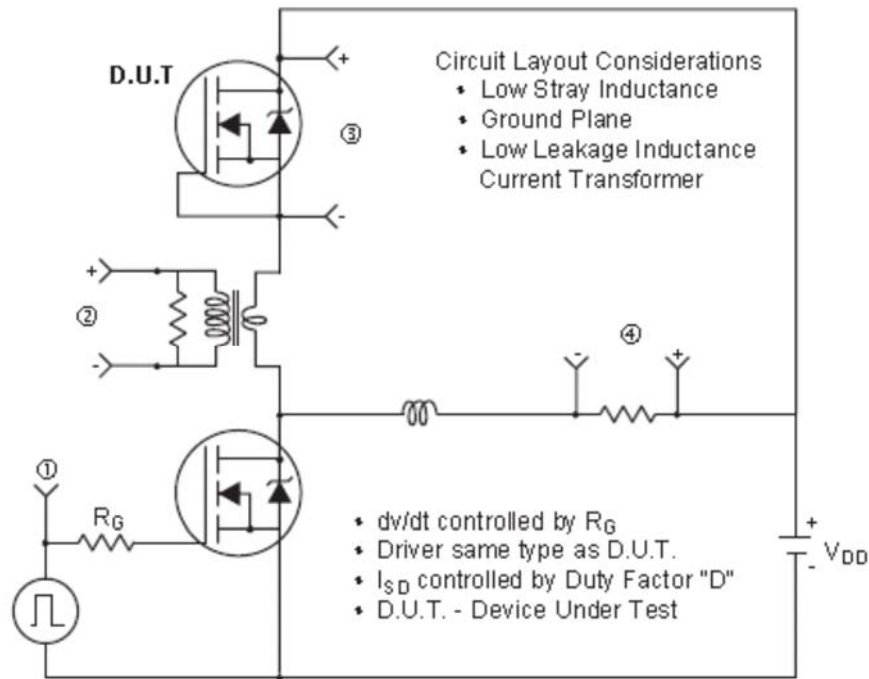
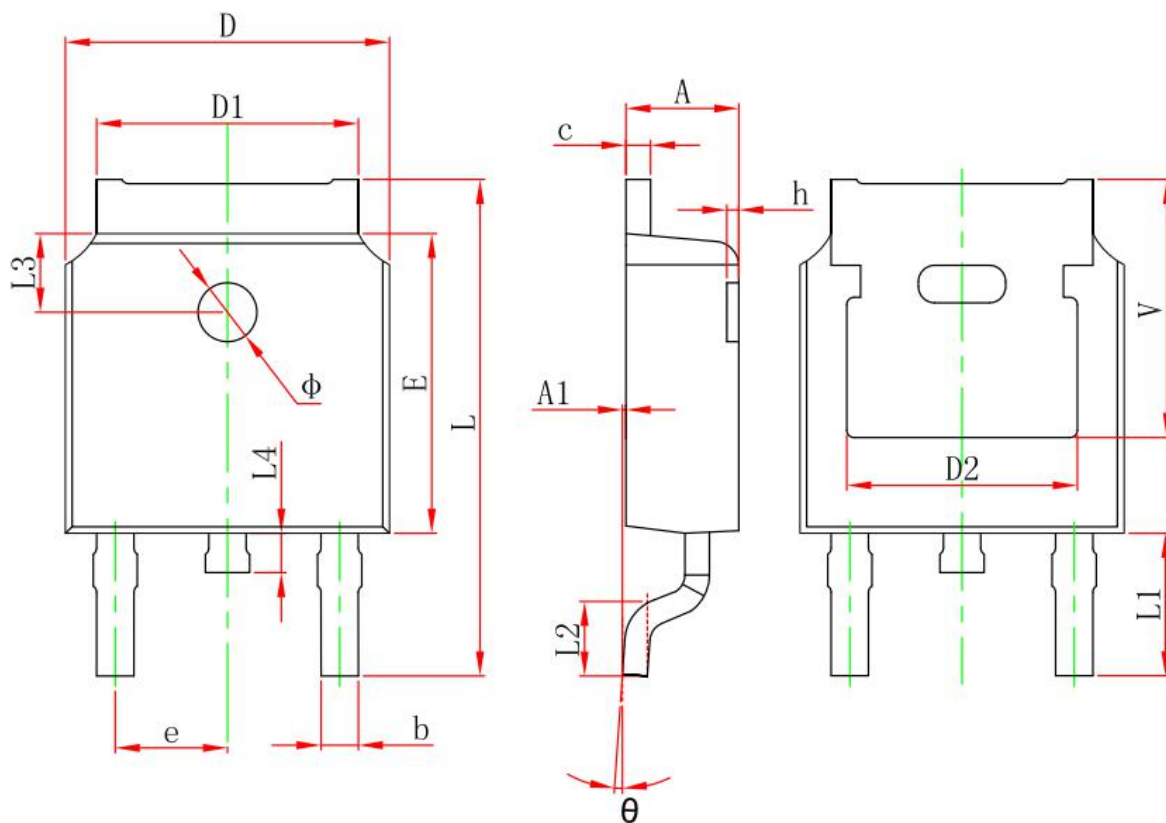


Figure 4: Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

TO-252-2L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	

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