

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	5.5m Ω @10V	70A
	7m Ω @4.5V	

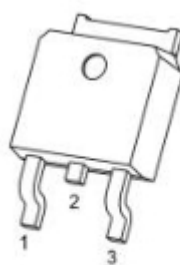
Feature

- 30V,70A
- $R_{DS(ON)}=5.5m\Omega$ (Typ.) @ $V_{GS}=10V$
- $R_{DS(ON)}=7m\Omega$ (Typ.) @ $V_{GS}=4.5V$
- Advanced Trench Technology
- Provide Excellent $R_{DS(ON)}$ and Low Gate Charge

Application

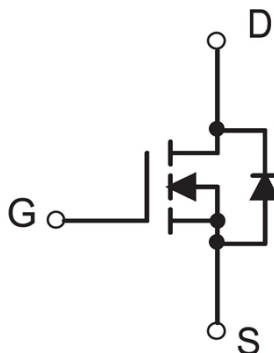
- Load Switch
- PWM Application

Package



TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous	I _D	70	A
Drain Current-Continuous(TC=100°C)	I _D (100°C)	50	A
Pulsed Drain Current	I _{DM}	280	A
Maximum Power Dissipation1	P _D	75	W
Single pulse avalanche energy 2	E _{AS}	88	mJ
Thermal Resistance, Junction to Ambient	R _{θJA}	65	°C/W
Thermal Resistance,Junction-to-Case	R _{θJC}	2	°C/W
Operating Junction and Storage Temperature Range	T _{STG} , T _J	-55 To 175	°C

Electrical characteristics

($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-source breakdown voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, V _{GS} = 0V, T _J =25°C			1	uA
Gate-body leakage current	I _{GSS}	V _{DS} =0V,V _{GS} =±20V			±100	uA
On Characteristics						
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2.5	V
Static Drain-Source on-Resistance3	R _{DS(on)}	V _{GS} =10V, I _D =20A		5.5	7	mΩ
		V _{GS} =4.5V, I _D =15A		7	9.5	
Forward Transconductance	g _{FS}	V _{DS} =5V,I _D =10A		20		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		1160		pF
Output Capacitance	C _{OSS}			200		
Reverse Transfer Capacitance	C _{rSS}			180		
Total Gate Charge	Q _g	V _{DS} =15V, I _D =20A, V _{GS} =4.5V		11.1		pF
Gate-Source Charge	Q _{gs}			1.85		
Gate-Drain("Miller") Charge	Q _{gd}			6.8		
Switching Characteristics						
Turn-on Delay Time	T _{d(on)}	V _{DS} =15V, I _D =15A, R _G =3.3Ω, V _{GS}		7.5		nS
Turn-on Rise Time	T _r			14.5		
Turn-off Delay Time	T _{d(off)}			35.2		
Turn-off Fall Time	T _f			9.6		
Drain-Source Diode Characteristics						
Maximum Continuous Drain to Source	I _S				75	V
Maximum Pulsed Drain to Source Diode	I _{SM}				300	A
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =30A			1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _S =30A, di/dt = 100A/μs		32		nS
Body Diode Reverse Recovery Charge	Q _{rr}			12		nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. E_{AS} condition: $T_J = 25^{\circ}\text{C}, V_{DD} = 25V, V_{GS} = 10V, L = 0.1mH, I_{AS} = 42A, R_G = 25\Omega$

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

Typical Characteristics

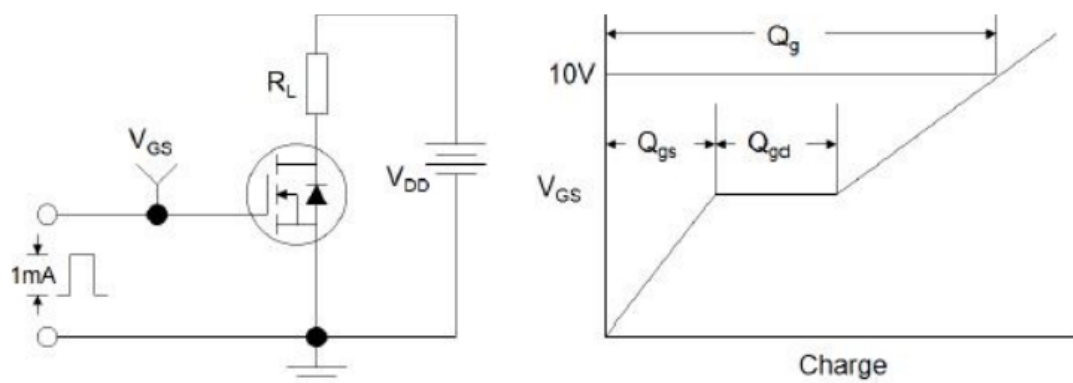


Figure1:Gate Charge Test Circuit & Waveform

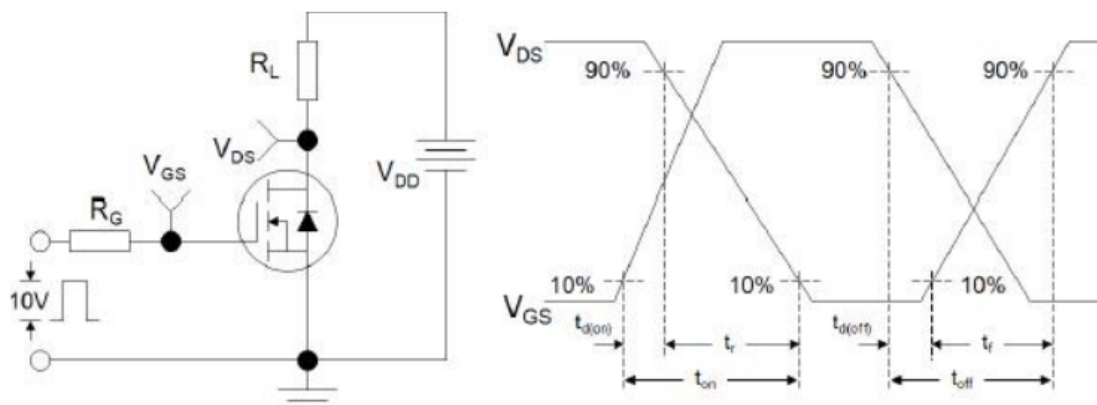


Figure 2: Resistive Switching Test Circuit & Waveforms

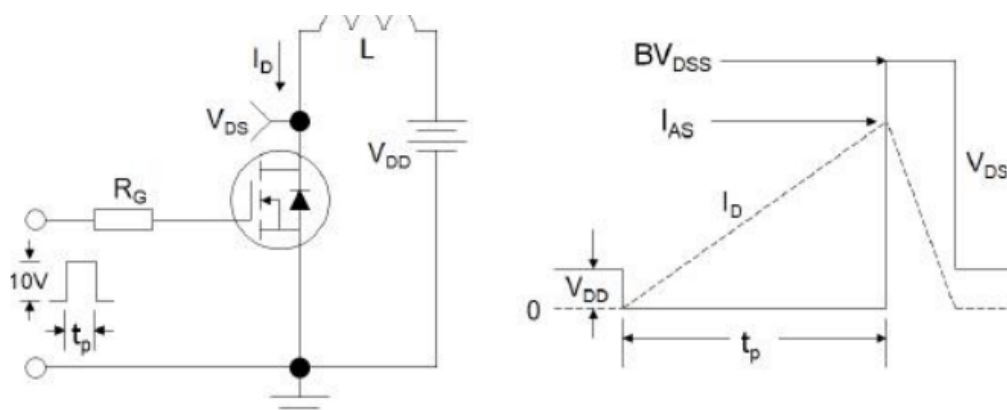


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

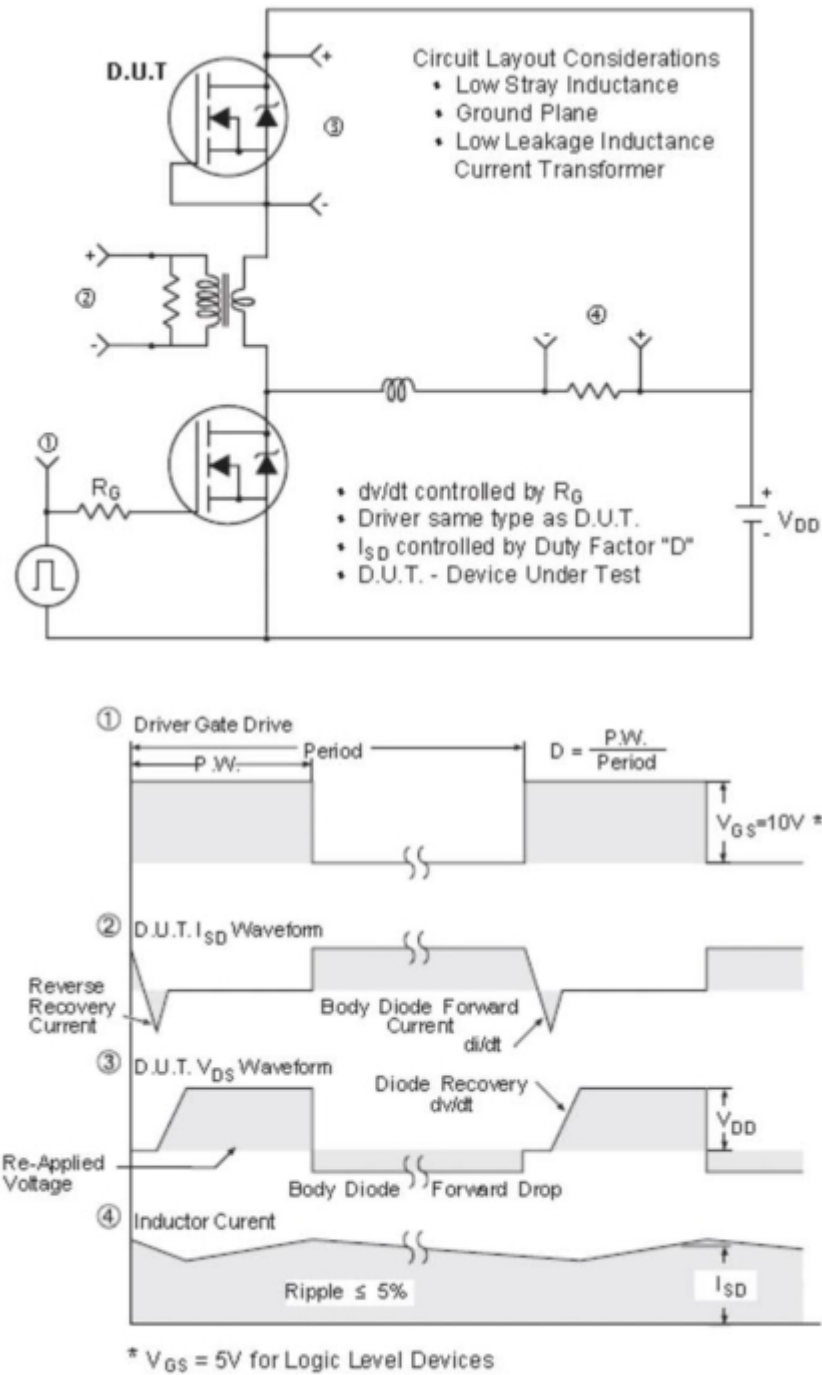
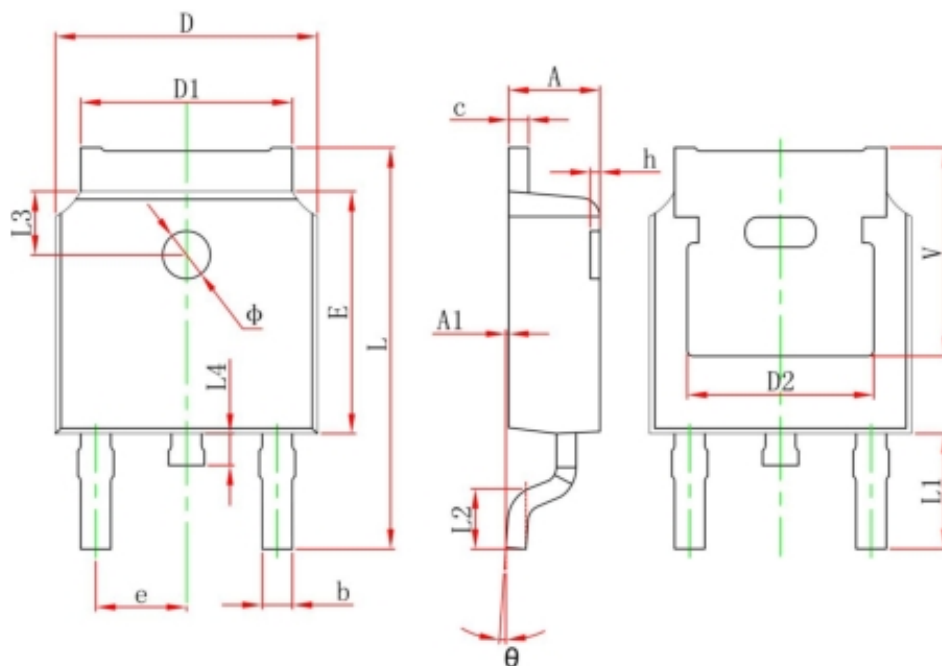


Figure 4: Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

TO-252 Package Information



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.	