

FL30H11K

30V N-channel enhancement mode MOSFET

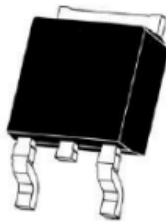
Features

- Extremely Low RDS(on):
Typ. RDS(on) = 2.5mΩ @ V_{GS}=10 V, I_d=40 A
- Good stability and uniformity
- 100% avalanche tested
- Excellent package for good heat dissipation

General Description

The FL30H11K uses advanced trench technology to provide excellent RDS(ON), low gate charge This device is suitable for use in UPS, power switching and general purpose applications.

TO-252-2L Package



Symbol	Parameter	Value	Units
V _{DS}	Drain-Source Voltage	30	V
I _D	Drain Current - Continuous (TC= 25°C) - Continuous (TC= 100°C)	110	A
		85*	A
I _{DM}	Drain Current - Pulsed (Note 1)	200*	A
V _{GS}	Gate-Source Voltage	± 20	V
E _{AS}	Single Pulsed Avalanche Energy (Note 2)	370	mJ
P _D	Power Dissipation (TC = 25°C) - Derate above 25°C	100	W
		0.53	W/°C
T _j , T _{stg}	Operating and Storage Temperature Range	-55 to +175	°C

* Drain current limited by maximum junction temperature

Thermal Characteristics

Symbol	Parameter	Value	Units
R _{θJC}	Thermal Resistance, Junction-to-Case	1.83	°C/W

Electrical Characteristics TC = 25°C unless otherwise noted

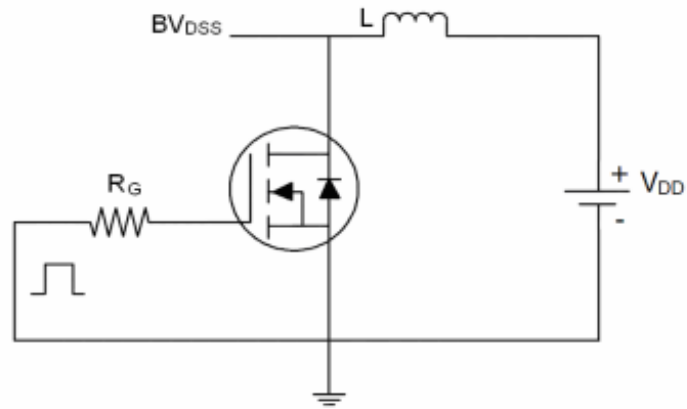
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}$			1	μA
I_{GSSF}	Gate Leakage Current, Forward	$V_{GS} = 20\text{ V}, V_{DS} = 0\text{ V}$			100	nA
I_{GSSR}	Gate Leakage Current, Reverse	$V_{GS} = -20\text{ V}, V_{DS} = 0\text{ V}$			-100	nA
On Characteristics						
$V_{GS(TH)}$	Gate Threshold voltage	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	1	1.6	2.5	V
$R_{DS(on)}$	Drain-Source on-state resistance	$V_{GS} = 10\text{ V}, I_D = 40\text{ A}$		2.5	3.0	m Ω
		$V_{GS} = 4.5\text{ V}, I_D = 24\text{ A}$		4.5	6	m Ω
g_{FS}	Forward Transconductance	$V_{DS} = 5\text{ V}, I_D = 24\text{ A}$ (Note 3)	20			S
Dynamic Characteristics						
C_{iss}	Input capacitance	$V_{DS}=15\text{V}, V_{GS}=0\text{V},$ $F=1.0\text{Mhz}$		1863		pF
C_{oss}	Output capacitance			298		pF
C_{riss}	Reverse transfer capacitance			278		pF
Switching Characteristics						
$t_{d(on)}$	Turn On Delay Time	$V_{DD}=15\text{V}, I_D=20\text{A},$ $V_{GS}=10\text{V}, R_g=30\Omega$ (Note 3, 4)		35		ns
t_r	Rising Time			205		ns
$t_{d(off)}$	Turn Off Delay Time			74		ns
t_f	Fall Time			72		ns
Q_g	Total Gate Charge	$V_{DD}=15\text{V}, I_D=45\text{A},$ $V_{GS}=10\text{V}$ (Note 3, 4)		36		nC
Q_{gs}	Gate-Source Charge			5		nC
Q_{gd}	Gate-Drain Charge			9.2		nC
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain-Source Diode Forward Current				110	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current				200	A
V_{SD}	Diode Forward Voltage	$V_{GS} = 0\text{ V}, I_S = 24\text{ A}$			1.2	V
T_{rr}	Reverse recovery time	$I_F=20\text{A}, di/dt=100\text{A}/\mu\text{S}$		28		ns
Q_{rr}	Reverse recovery charge			13		nC

Notes:

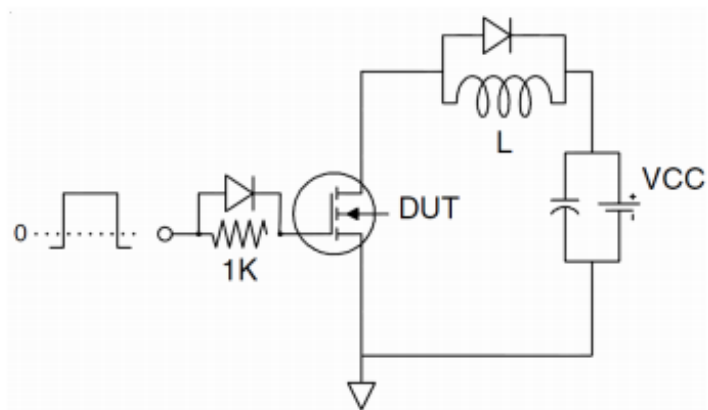
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. $L = 0.5\text{ mH}, I_{AS} = 35\text{ A}, V_{DD} = 15\text{ V}, R_g = 25\ \Omega,$ Starting $T_j = 25^\circ\text{C}$
3. $I_{SD} \leq 40\text{ A}, di/dt = 100\text{ A}/\mu\text{s}, V_{DD} \leq BV_{DSS},$ Starting $T_j = 25^\circ\text{C}$
4. Pulse Test : Pulse width $\leq 300\ \mu\text{s},$ Duty cycle $\leq 2\%$
5. Essentially independent of operating temperature

Test Circuit

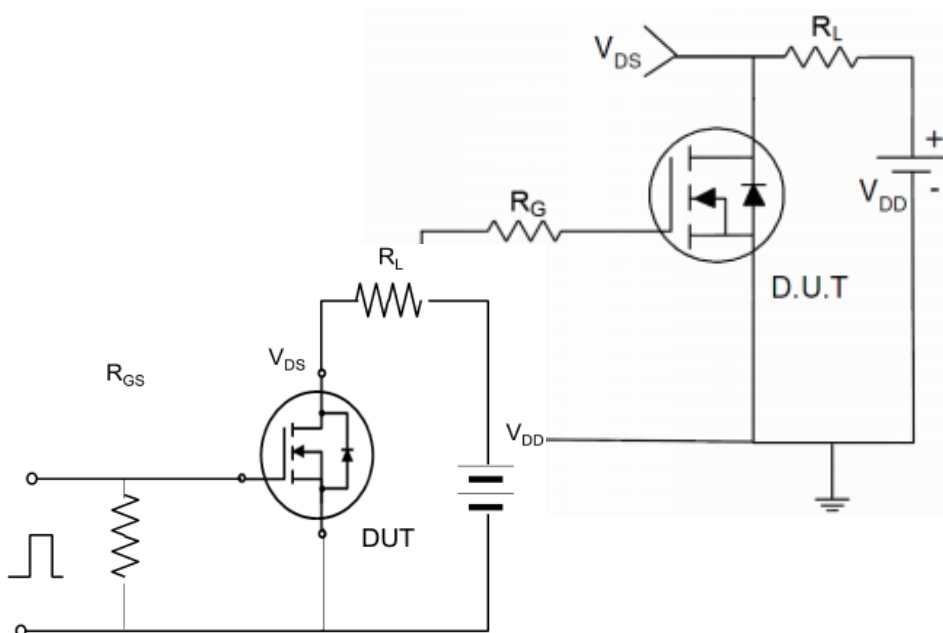
1) E_{AS} Test Circuits



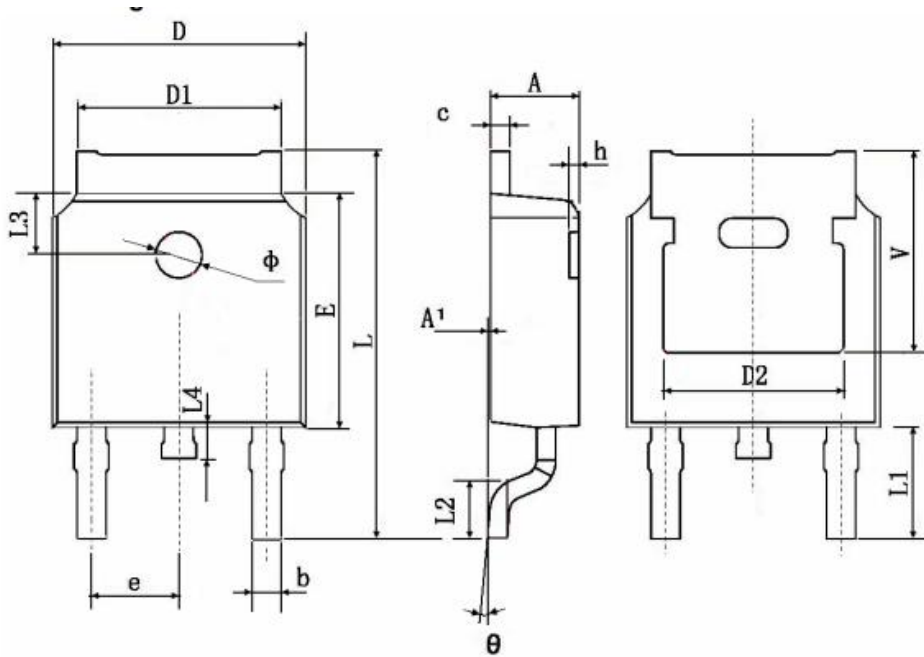
2) Gate Charge Test Circuit:



3) Switch Time Test Circuit:



Package Dimensions : TO-252-2L PACKAGE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.250	2.350	0.089	0.093
A1	0.050	0.150	0.002	0.006
b	0.660	0.860	0.026	0.034
c	0.458	0.558	0.018	0.022
D	6.550	6.650	0.259	0.263
D1	5.234	5.434	0.207	0.215
D2	4.826 TYP.		0.191 TYP.	
E	6.050	6.150	0.239	0.243
e	2.236	2.336	0.088	0.092
L	9.820	10.220	0.388	0.404
L1	3.000 TYP.		0.119 TYP.	
L2	1.400	1.600	0.055	0.063
L3	1.800 TYP.		0.071 TYP.	
L4	0.700	0.900	0.028	0.036
φ	1.150	1.250	0.045	0.049
θ	0°	3°	0°	3°
h	0.000	0.300	0.000	0.012
V	5.399 TYP		0.213 TYP	