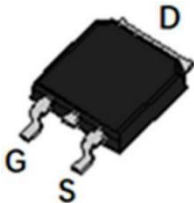

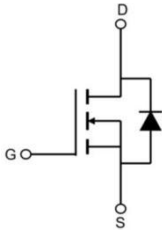




Description

<p>Features</p> <ul style="list-style-type: none"> Extremely Low RDS(on): Typ.RDS(on) = 5.8 mΩ @VGS=10 V, Id=15A Good stability and uniformity 100% avalanche tested Excellent package for good heat dissipation 	<p>General Description</p> <ul style="list-style-type: none"> The 3040K/H 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. 	
 <p>TO-252</p>	 <p>Marking and pin Assignment</p>	 <p>Schematic Diagram</p>

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

Symbol	Parameter	Max.	Units
V _{DS}	Drain-Source Voltage	30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current	T _C = 25°C	40
		T _C = 100°C	26*
I _{DM}	Pulsed Drain Current ^{note1}	135*	A
E _{AS}	Single Pulsed Avalanche Energy ^{note2}	80	mJ
P _D	Power Dissipation T _C = 25°C	50	W
		0.53	W/°C
R _{θJC}	Thermal Resistance, Junction to Case	1.83	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +175	°C

* Drain current limited by maximum junction temperature



Electrical Characteristics (T_J=25°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 =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V,	-	-	1.0	μA
I _{GSSF}	Gate Leakage Current, Forward	V _{DS} =0V, V _{GS} =20V	-	-	100	nA
I _{GSSR}	Gate Leakage Current, Reverse	V _{DS} =0V, V _{GS} =-20V	-	-	-100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.5	V
R _{DS(on)}	Static Drain-Source on-Resistance	V _{GS} =10V, I _D =20A	-	5.8	7.5	mΩ
		V _{GS} =4.5V, I _D =15A	-	10.5	13.5	
g _{FS}	Forward Transconductance	V _{DS} = 5 V, I _D = 15 A (Note 3)	20	-	-	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1.0MHz	-	1019	-	pF
C _{oss}	Output Capacitance		-	166	-	pF
C _{rss}	Reverse Transfer Capacitance		-	141	-	pF
Q _g	Total Gate Charge	V _{DS} =15V, I _D =20A, V _{GS} =10V	-	19	-	nC
Q _{gs}	Gate-Source Charge		-	6.3	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	4.5	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	VDD=15V, I _D =12A, VGS=10V, RG=60Ω (Note 3, 4)	-	6	-	ns
t _r	Turn-on Rise Time		-	24	-	ns
t _{d(off)}	Turn-off Delay Time		-	28	-	ns
t _f	Turn-off Fall Time		-	27	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	40	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	135	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S =40A	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	I _F =12A, di/dt=100A/μs	-	21	-	ns
Q _{rr}	Body Diode Reverse Recovery Charge		-	9	-	nC

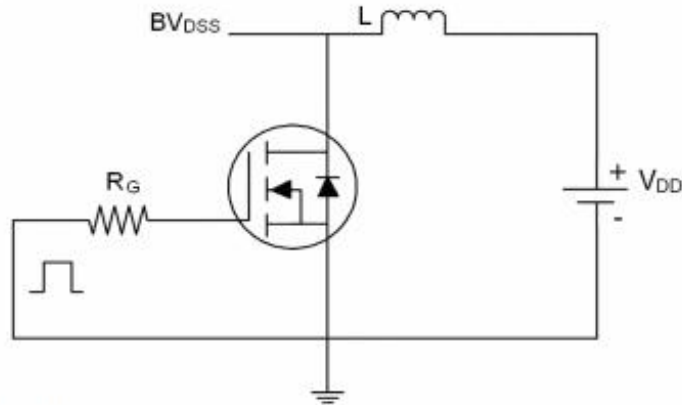
Notes:

1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. L = 0.5 mH, I_{AS} = 15 A, VDD = 15V, RG = 25 Ω, Starting T_J = 25°C
3. I_{SD} ≤ 40A, di/dt = 100A/us, VDD ≤ BVDSS, Starting T_J = 25°C
4. Pulse Test : Pulse width ≤ 300us, Duty cycle ≤ 2%
5. Essentially independent of operating temperature

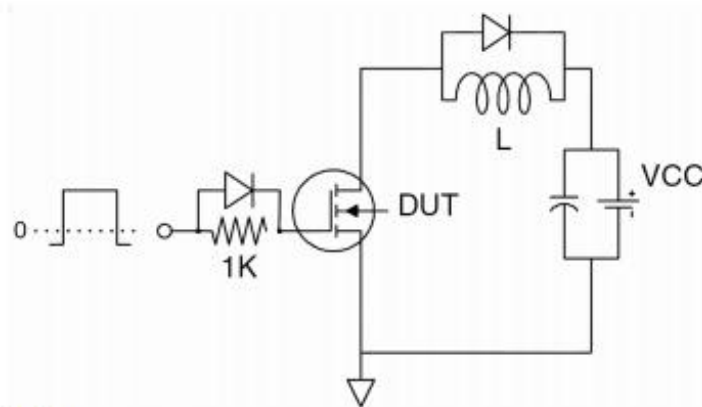


Test Circuit

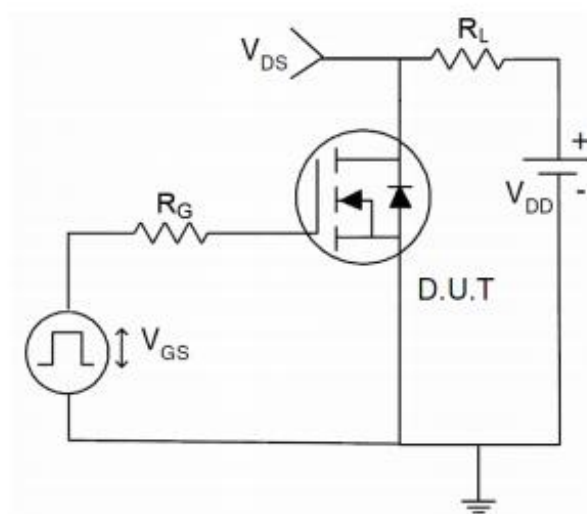
1) E_{AS} Test Circuits



2) Gate Charge Test Circuit:



3) Switch Time Test Circuit:



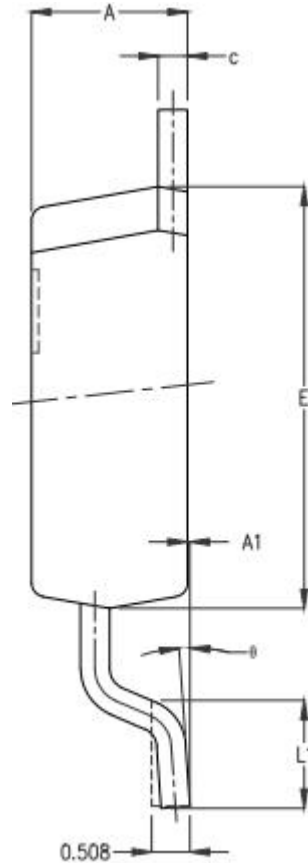
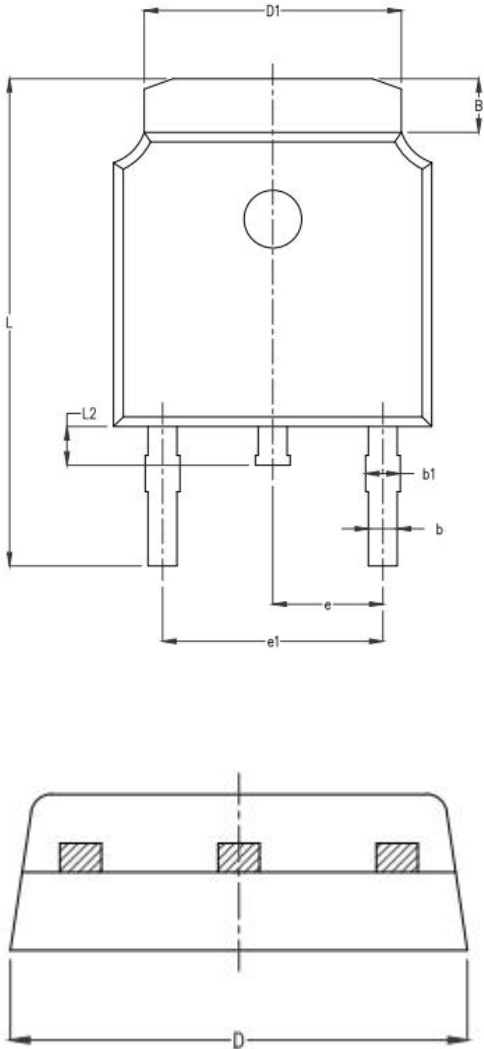


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FINE MADE MICROELECTRONICS GROUP CO., LTD.

3040K/H (文件编号: S&CIC1966) N-channel Enhancement Mode Power MOSFET

TO-252 Package Information



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	2.15	2.25	2.35
A1	0.00	0.06	0.12
B	0.96	1.11	1.26
b	0.59	0.69	0.79
b1	0.69	0.81	0.93
c	0.34	0.42	0.50
D	6.45	6.60	6.75
D1	5.23	5.33	5.43
E	5.95	6.10	6.25
e	2.286TYP.		
e1	4.47	4.57	4.67
L	9.90	10.10	10.30
L1	1.40	1.55	1.70
L2	0.60	0.80	1.00
θ	0°	4°	8°

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