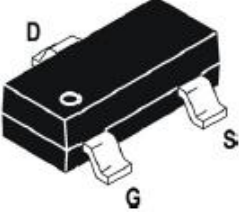
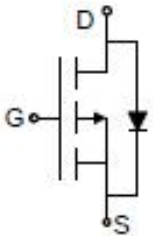




## Description

<p><b>Features</b></p> <ul style="list-style-type: none"> <li>Extremely Low RDS(on): Typ.RDS(on) = 52mΩ @VGS=-10V, Id=-4A</li> <li>Good stability and uniformity</li> <li>100% avalanche tested</li> <li>Excellent package for good heat dissipation</li> </ul>	<p><b>General Description</b></p> <ul style="list-style-type: none"> <li>The 3401H uses advanced trench</li> <li>technology to provide excellent RDS(ON),</li> <li>low gate charge This device is suitable for</li> <li>use in UPS, power switching and</li> <li>general purpose applications.</li> </ul>
<p><b>Package</b></p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>SOT-23</p> </div> <div style="text-align: center;">  <p>Schematic Diagram</p> </div> </div>	

## Absolute Maximum Ratings (T<sub>C</sub>=25°C unless otherwise specified)

Symbol	Parameter	Max.	Units
V <sub>DS</sub>	Drain-Source Voltage	-30	V
V <sub>GS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub>	Continuous Drain Current	T <sub>C</sub> = 25°C	-4.2
		T <sub>C</sub> = 100°C	-2.7
P <sub>D</sub>	Power Dissipation	T <sub>C</sub> = 25°C	0.53
I <sub>DM</sub>	Drain Current - Pulsed (Note 1)	-30*	A
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Temperature Range	-55 to +175	°C

\* Drain current limited by maximum junction temperature

## Thermal Characteristics

Symbol	Parameter	Value	Units
R <sub>θJC</sub>	Thermal Resistance, Junction-to-Case	83	°C/W



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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	-30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = -30V, V_{GS} = 0V,$	-	-	-1	$\mu A$
$I_{GSSF}$	Gate Leakage Current, Forward	$V_{DS} = 0V, V_{GS} = 12V$	-	-	100	nA
$I_{GSSR}$	Gate Leakage Current, Reverse	$V_{DS} = 0V, V_{GS} = -12V$	-	-	-100	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.6	-1.0	-1.3	V
$R_{DS(on)}$	Static Drain-Source on-Resistance	$V_{GS} = -10V, I_D = -4.0A$	-	52	63	m $\Omega$
		$V_{GS} = -4.5V, I_D = -3.0A$	-	55	71	
$g_{FS}$	Forward Transconductance	$V_{DS} = -5V, I_D = -4.0A$ (Note 2)	20	-	-	S
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS} = -15V, V_{GS} = 0V,$ $f = 1.0MHz$	-	878	-	pF
$C_{oss}$	Output Capacitance		-	105	-	pF
$C_{rSS}$	Reverse Transfer Capacitance		-	64	-	pF
$Q_g$	Total Gate Charge	$V_{DS} = -15V, I_D = -4.2A,$	-	8.5	-	nC
$Q_{gs}$	Gate-Source Charge	$V_{GS} = -10V$ (Note 3, 4)	-	1.8	-	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	2.6	-	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = -15V, I_D = 1A,$ $V_{GS} = -10V, R_G = 2.5\Omega$ (Note 3, 4)	-	7	-	ns
$t_r$	Turn-on Rise Time		-	3	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	20	-	ns
$t_f$	Turn-off Fall Time		-	12	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$I_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	-4.2	A
$I_{SM}$	Maximum Pulsed Drain-Source Diode Forward Current				-30	A
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S = -4.0A$	-	-	-1.2	V

Notes:1. Repetitive Rating : Pulse width limited by maximum junction temperature

2.  $I_{SD} \leq 40A, di/dt = 100A/us, V_{DD} \leq BVDSS, Staring T_j = 25^\circ C$

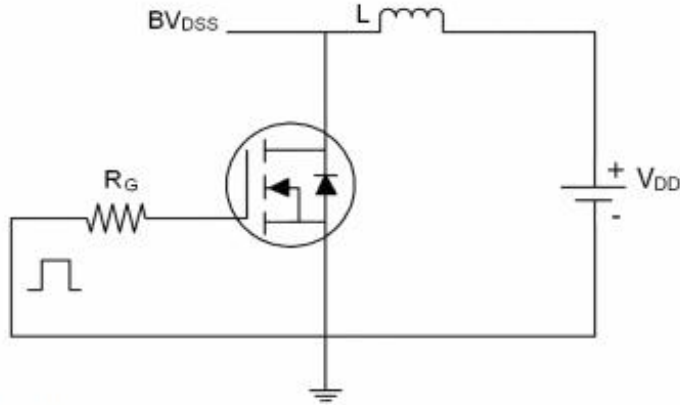
3. Pulse Test : Pulse width  $\leq 300us, Duty\ cycle \leq 2\%$

4. Essentially independent of operating temperature

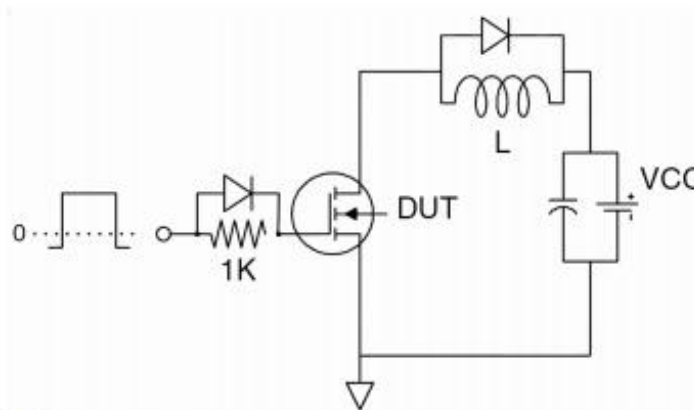


Test Circuit

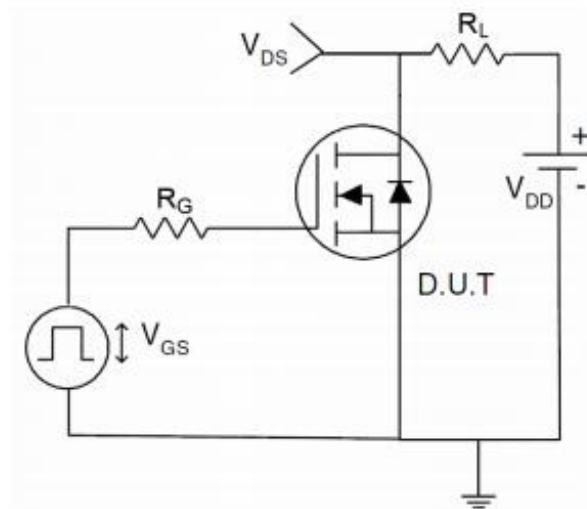
1)  $E_{AS}$  Test Circuits



2) Gate Charge Test Circuit:



3) Switch Time Test Circuit:



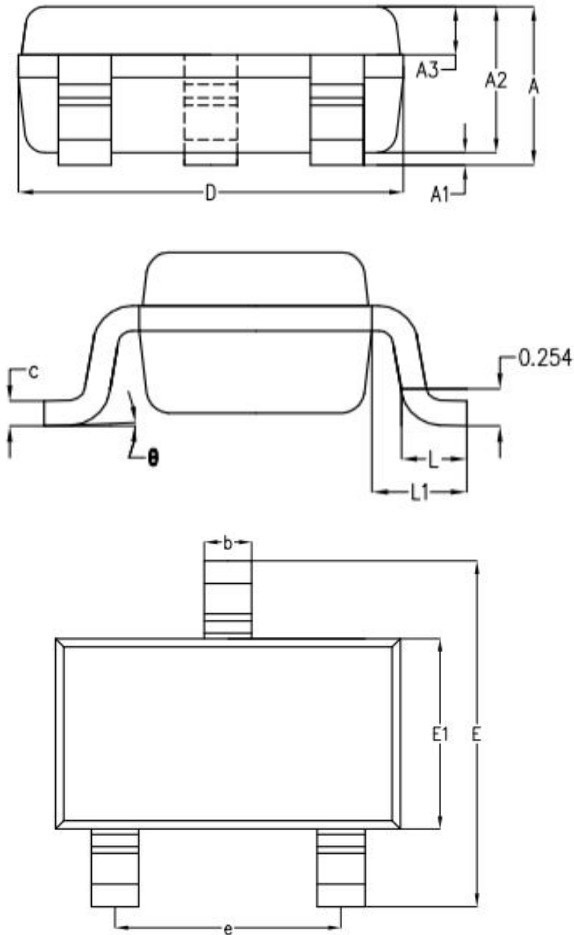


3401H(文件编号: S&CIC1963)

P-Channel Trench Power MOSFET

Package Information.

➤ SOT23-3(大)



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	-	1.19	1.24
A1	-	0.05	0.09
A2	1.05	1.10	1.15
A3	0.31	0.36	0.41
b	0.35	0.40	0.45
c	0.12	0.17	0.22
D	2.85	2.90	2.95
E	2.80	2.90	3.00
E1	1.55	1.60	1.65
e	1.90BSC		
L	0.37	0.45	0.53
L1	0.65BSC		
$\theta$	0°	2°	8°