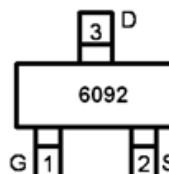
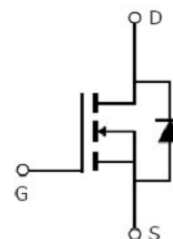


**Main Product Characteristics:**

$V_{DSS}$	60V
$R_{DS(on)}$	70mΩ(typ)
$I_D$	2.7A


**SOT23**

**Marking and pin Assignment**

**Schematic diagram**
**Features and Benefits:**

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


**Description:**

It utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications

**Absolute max Rating:**

Symbol	Parameter	Max.	Units
$I_D$ @ TC = 25°C	Continuous Drain Current, $V_{GS}$ @ 10V	2.7 ①	A
$I_{DM}$	Pulsed Drain Current ②	10.8	
$P_D$ @TC = 25°C	Power Dissipation ③	1.25	W
	Linear Derating Factor	0.01	W/°C
$V_{DS}$	Drain-Source Voltage	60	V
$V_{GS}$	Gate-to-Source Voltage	± 20	V
$T_J$ $T_{STG}$	Operating Junction and Storage Temperature Range	-55 to + 150	°C

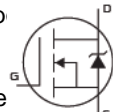
## Thermal Resistance

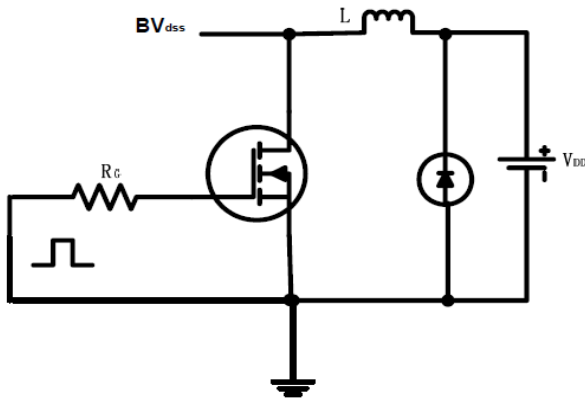
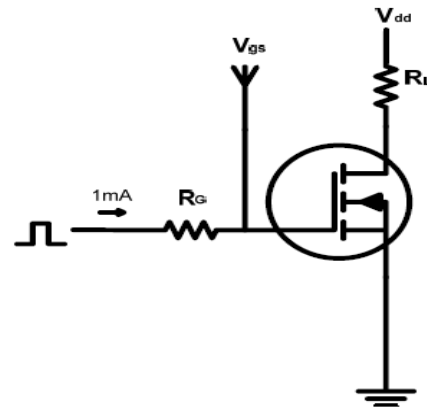
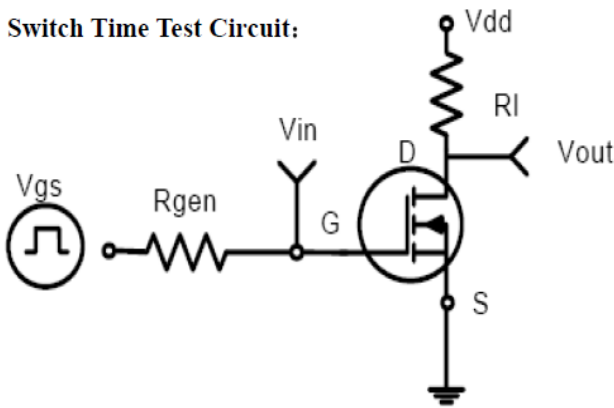
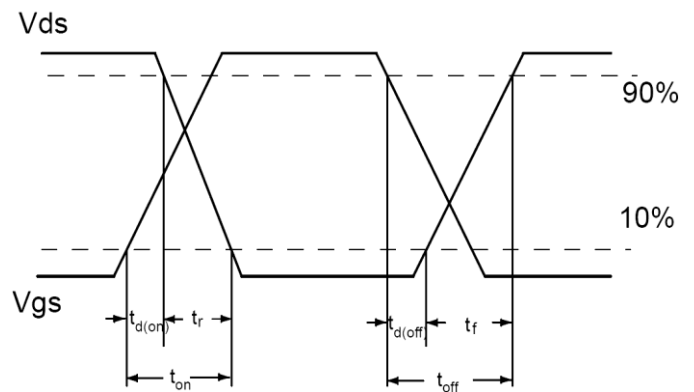
Symbol	Characterizes	Typ.	Max.	Units
R <sub>θJA</sub>	Junction-to-Ambient (t ≤ 10s)④	—	99	°C/W
	Junction-to-Ambient (PCB mounted, steady-state) ④	—	100	

## Electrical Characterizes @T<sub>A</sub>=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V <sub>(BR)DSS</sub>	Drain-to-Source breakdown voltage	60	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA
R <sub>DS(on)</sub>	Static Drain-to-Source on-resistance	—	70	92	mΩ	V <sub>GS</sub> =10V, I <sub>D</sub> = 2.7A
V <sub>GS(th)</sub>	Gate threshold voltage	1	—	2.5	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
I <sub>DSS</sub>	Drain-to-Source leakage current	—	—	1	μA	V <sub>DS</sub> = 60V, V <sub>GS</sub> = 0V
I <sub>GSS</sub>	Gate-to-Source forward leakage	—	—	100	nA	V <sub>GS</sub> = 20V
	Gate-to-Source reverse leakage	-100	—	—		V <sub>GS</sub> = -20V
Q <sub>g</sub>	Total gate charge	—	12	—	nC	I <sub>D</sub> = 4A
Q <sub>gs</sub>	Gate-to-Source charge	—	3.5	—		V <sub>DD</sub> =40V
Q <sub>gd</sub>	Gate-to-Drain("Miller") charge	—	3.7	—		V <sub>GS</sub> = 10V
t <sub>d(on)</sub>	Turn-on delay time	—	9.2	—	nS	V <sub>GS</sub> =10V, V <sub>DS</sub> =25V, R <sub>GEN</sub> =50Ω I <sub>D</sub> =1.2A
t <sub>r</sub>	Rise time	—	16.7	—		
t <sub>d(off)</sub>	Turn-Off delay time	—	35.4	—		
t <sub>f</sub>	Fall time	—	8.6	—		
C <sub>iss</sub>	Input capacitance	—	641	—	pF	V <sub>GS</sub> = 0V V <sub>DS</sub> = 25V f =1MHz
C <sub>oss</sub>	Output capacitance	—	48	—		
C <sub>rss</sub>	Reverse transfer capacitance	—	38	—		

## Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I <sub>S</sub>	Continuous Source Current (Body Diode)	—	—	2.7 ①	A	MOSFET symb showing the integral reverse p-n junction diode. 
I <sub>SM</sub>	Pulsed Source Current (Body Diode)	—	—	10.8	A	
V <sub>SD</sub>	Diode Forward Voltage	—	0.85	1.3	V	I <sub>S</sub> =2.7A, V <sub>GS</sub> =0V, T <sub>J</sub> = 25°C

**Test circuits and Waveforms:**
**EAS test circuits:**

**Gate charge test circuit:**

**Switch Time Test Circuit:**

**Switch Waveforms:**

**Notes:**

- ① Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 75A.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.
- ④ The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ\text{C}$
- ⑤ These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of  $T_{J(MAX)} = 175^\circ\text{C}$ .

Thermal characteristics:

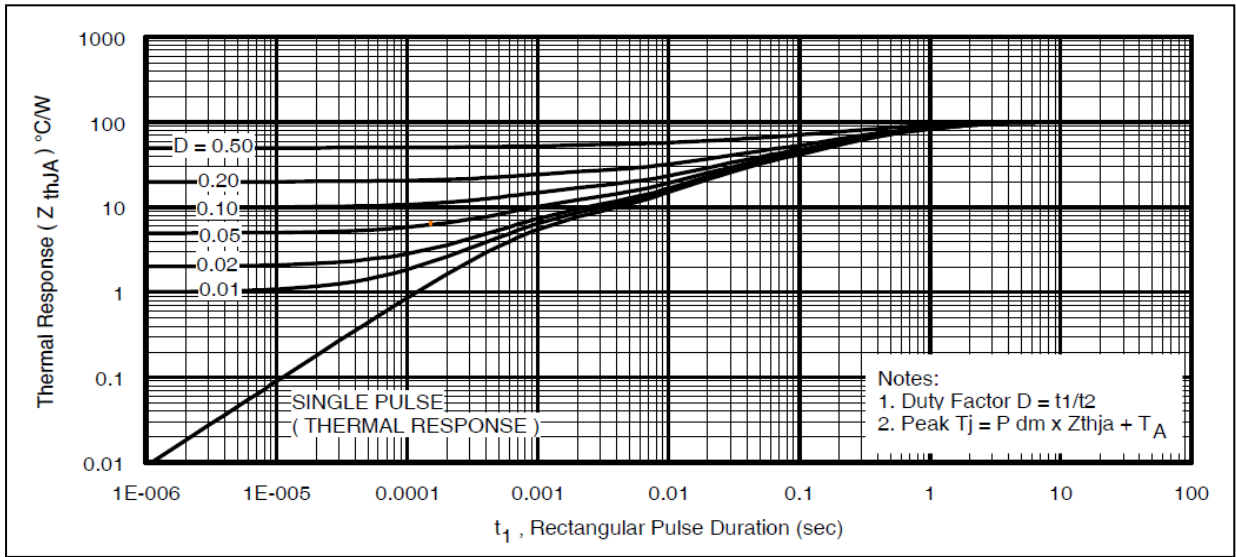
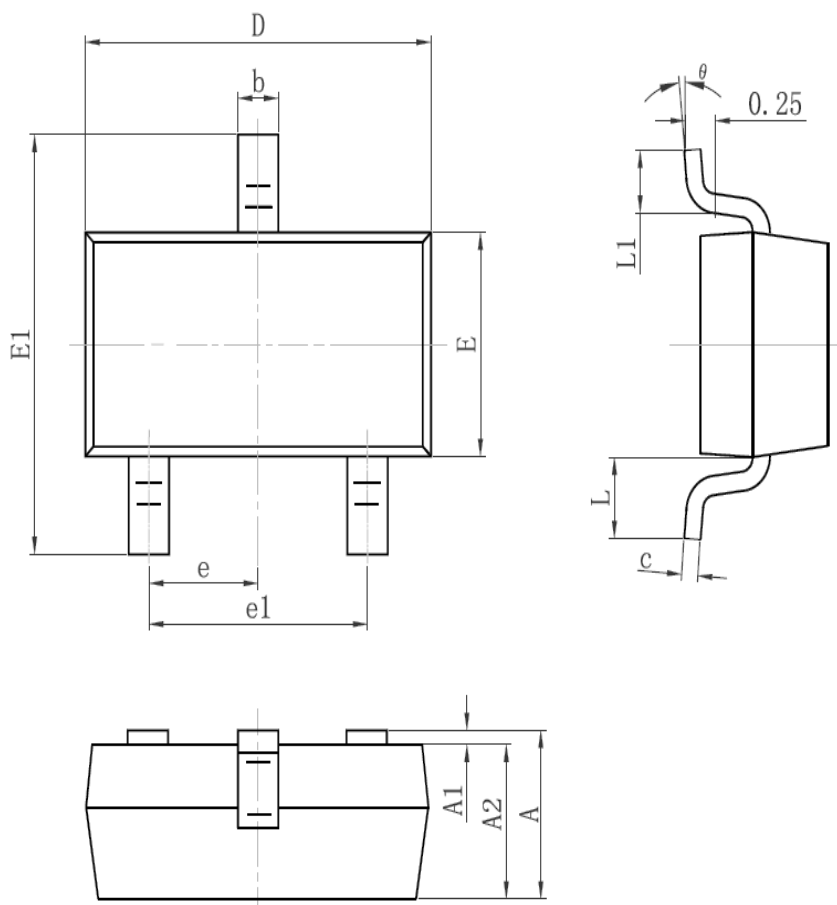


Fig 1. Typical Effective Transient Thermal Impedance, Junction-to-Ambient

**Mechanical Data:**
**SOT-23 PACKAGE OUTLINE DIMENSION**


Symbol	Dimension In Millimeters		Dimension In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.55REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

**Ordering and Marking Information**

<b>Device Marking: 6092</b>  <div style="text-align: center;"> <b>Package (Available)</b>  <b>SOT23</b>  <b>Operating Temperature Range</b>  <b>C : -55 to 150 °C</b> </div>
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**Devices per Unit**

Package Type	Units/Tape	Tapes/Inner Box	Units/Inner Box	Inner Boxes/Carton Box	Units/Carton Box
SOT23	3000	10	30000	4	120000

**Reliability Test Program**

Test Item	Conditions	Duration	Sample Size
High Temperature Reverse Bias(HTRB)	T <sub>j</sub> =125°C to 150°C @ 80% of Max V <sub>DSS</sub> /V <sub>CES</sub> /VR	168 hours 500 hours 1000 hours	3 lots x 77 devices
High Temperature Gate Bias(HTGB)	T <sub>j</sub> =150°C @ 100% of Max V <sub>GSS</sub>	168 hours 500 hours 1000 hours	3 lots x 77 devices

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**Customer Service****Worldwide Sales and Service:**

Sales@silikron.com

**Technical Support:**

Technical@silikron.com

**Suzhou Silikron Semiconductor Corp.**

11A, 428 Xinglong Street, Suzhou Industrial Park, P.R.China

**TEL:** (86-512) 62560688

**FAX:** (86-512) 65160705

**E-mail:** Sales@silikron.com