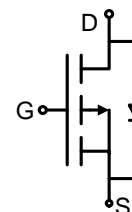


Main Product Characteristics:

V_{DSS}	-20V
$R_{DS(on)}$	105m Ω (typ.)
I_D	-2.3A ①


SOT-23

Schematic Diagram
Features and Benefits:

- Advanced trench 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 ①	-2.3	A
I_{DM}	Pulsed Drain Current ②	-8	
P_D @TC = 25°C	Power Dissipation	1.25	W
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-to-Source Voltage	± 8	V
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	°C

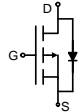
Thermal Resistance

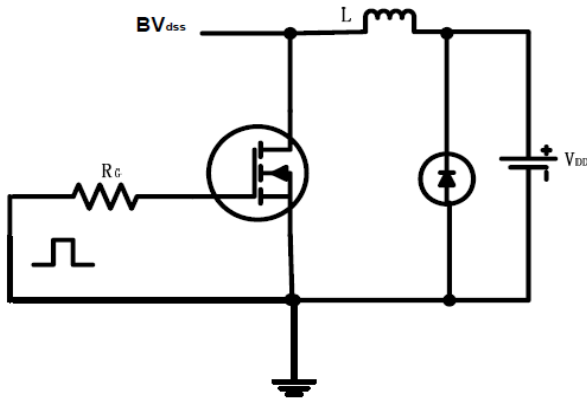
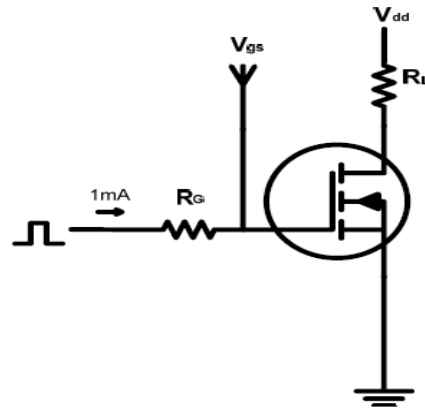
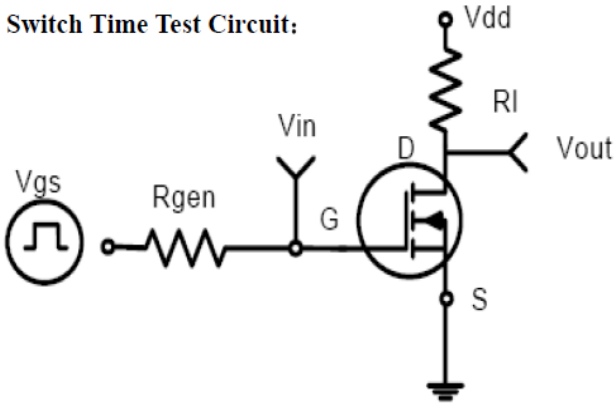
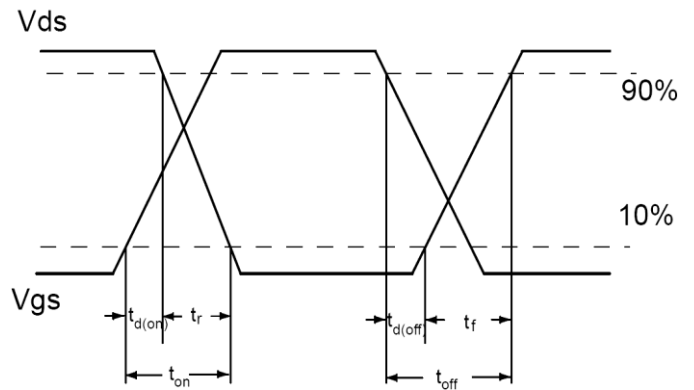
Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-ambient ($t \leq 10s$) ③	—	100	$^{\circ}C/W$

Electrical Characterizes @ $T_A=25^{\circ}C$ unless otherwise specified

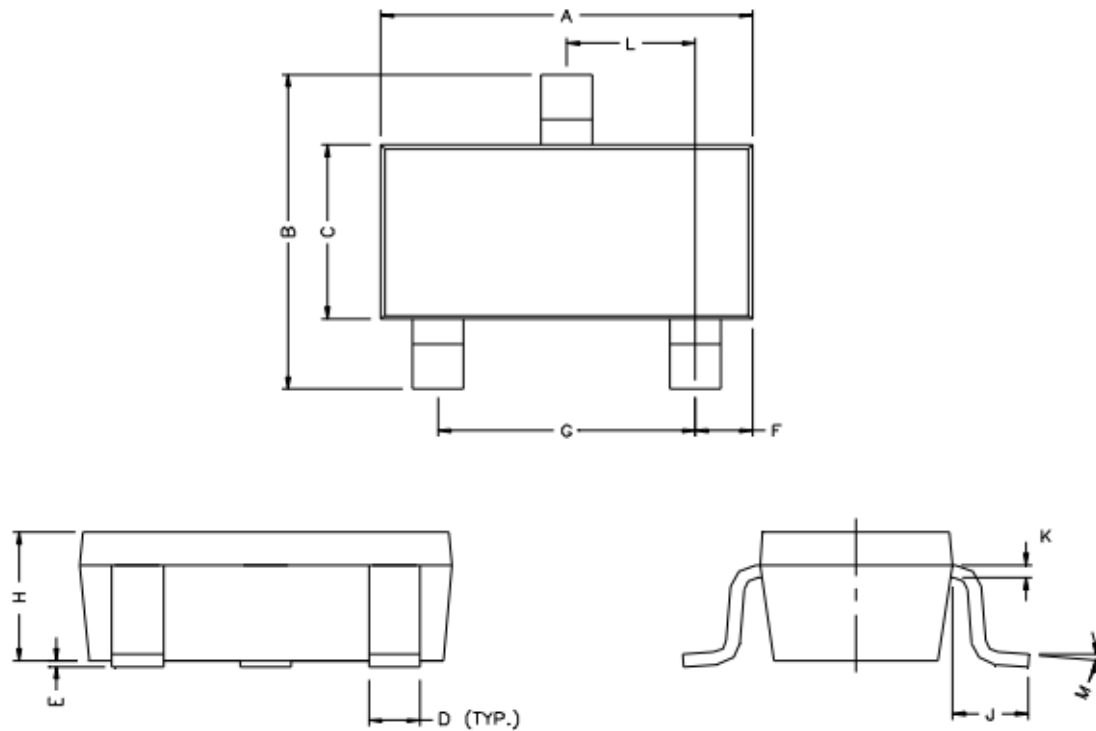
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	-20	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	105	130	m Ω	$V_{GS} = -4.5V, I_D = -2.3A$
		—	145	190		$V_{GS} = -2.5V, I_D = -2A$
$V_{GS(th)}$	Gate threshold voltage	-0.45	—	—	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
I_{DSS}	Drain-to-Source leakage current	—	—	-1	μA	$V_{DS} = -16V, V_{GS} = 0V$
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	$V_{GS} = 8V$
		—	—	-100		$V_{GS} = -8V$
Q_g	Total gate charge	—	5.7	—	nC	$I_D = -2.3A,$ $V_{DS} = -6V,$ $V_{GS} = -4.5V$
Q_{gs}	Gate-to-Source charge	—	0.82	—		
Q_{gd}	Gate-to-Drain("Miller") charge	—	1.5	—		
$t_{d(on)}$	Turn-on delay time	—	12	—	ns	$V_{GS} = -4.5V, V_{DS} = -6V,$ $R_{GEN} = 6\Omega, R_L = 6\Omega$
t_r	Rise time	—	35	—		
$t_{d(off)}$	Turn-Off delay time	—	41	—		
t_f	Fall time	—	33	—		
C_{iss}	Input capacitance	—	410	—	pF	$V_{GS} = 0V,$ $V_{DS} = -6V,$ $f = 1MHz$
C_{oss}	Output capacitance	—	220	—		
C_{riss}	Reverse transfer capacitance	—	85	—		

Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode) ①	—	—	-1.6	A	MOSFET symbol showing the integral reverse p-n junction diode. 
V_{SD}	Diode Forward Voltage	—	-0.8	-1.2	V	$I_S = -1A, V_{GS} = 0V$

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.
- ② Repetitive rating; pulse width limited by max junction temperature.
- ③ 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 $T_A = 25^\circ\text{C}$

Mechanical Data:


REF.	Millimeter		REF.	Millimete	
	Min.	Max.		Min.	Max.
A	2.80	3.00	G	1.80	2.00
B	2.30	2.50	H	0.90	1.1
C	1.20	1.40	K	0.10	0.20
D	0.30	0.50	J	0.35	0.70
E	0	0.10	L	0.92	0.98
F	0.45	0.55	M	0°	10°

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Customer Service**Worldwide Sales and Service:**

Sales@silikron.com

Technical Support:

Technical@silikron.com

Suzhou Silikron Semiconductor Corp.

501, NW-20, Nanopolis, 99th Jinjihu Avenue, Industrial Park, Suzhou, P.R, China

TEL: (86-512) 62560688

FAX: (86-512) 62560688-8092

E-mail: Sales@silikron.com