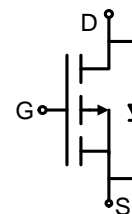


Main Product Characteristics:

V_{DSS}	-30V
$R_{DS(on)}$	42m Ω (typ.)
I_D	-4.2A 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	-4.2	A
I_{DM}	Pulsed Drain Current ②	-30	
P_D @TC = 25°C	Power Dissipation	1.4	W
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-to-Source Voltage	± 12	V
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	°C

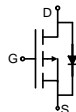
Thermal Resistance

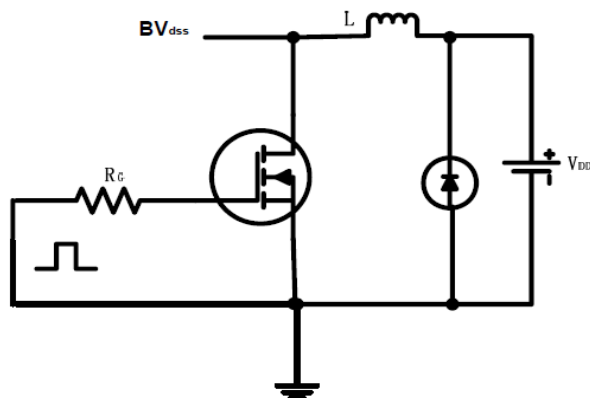
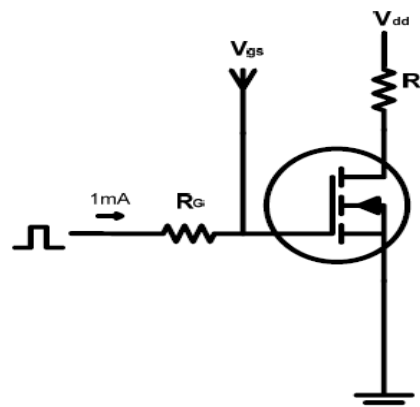
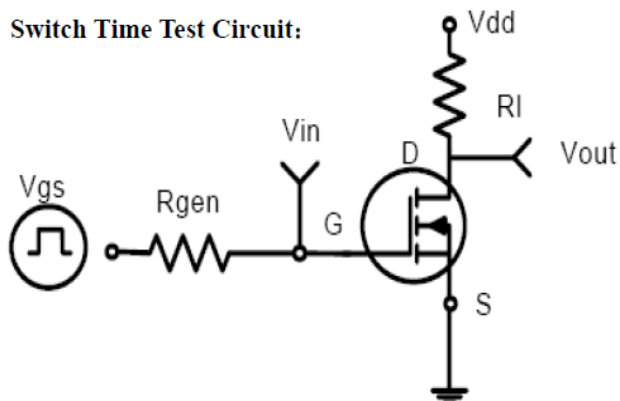
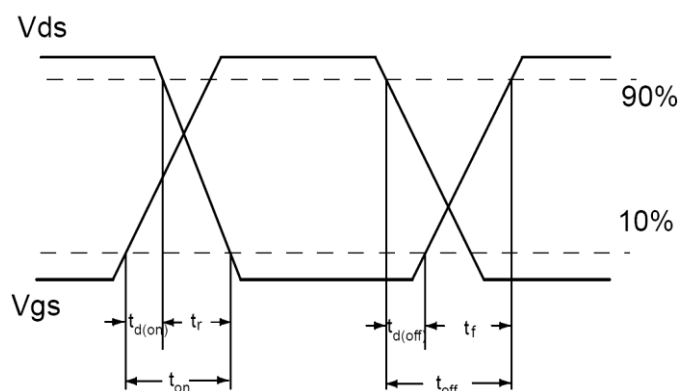
Symbol	Characterizes	Typ.	Max.	Units
R _{θJA}	Junction-to-ambient (t ≤ 10s) ③	—	125	°C/W

Electrical Characterizes @T_A=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	-30	—	—	V	V _{GS} = 0V, I _D = -250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	42	64	mΩ	V _{GS} = -10V, I _D = -4.2A
		—	64	75		V _{GS} = -4.5V, I _D = -4A
		—	80	120		V _{GS} = -2.5V, I _D = -1A
V _{GS(th)}	Gate threshold voltage	-0.5	—	-1.3	V	V _{DS} = V _{GS} , I _D = -250μA
I _{DSS}	Drain-to-Source leakage current	—	—	-1	μA	V _{DS} = -24V, V _{GS} = 0V
I _{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V _{GS} = 12V
		—	—	-100		V _{GS} = -12V
Q _g	Total gate charge	—	10	—	nC	I _D = -4A, V _{DS} = -15V, V _{GS} = -10V
Q _{gs}	Gate-to-Source charge	—	2	—		
Q _{gd}	Gate-to-Drain("Miller") charge	—	3	—		
t _{d(on)}	Turn-on delay time	—	6.5	—	ns	V _{GS} = -10V, V _{DS} = -15V, R _{GEN} = 6Ω, R _L = 3.7Ω
t _r	Rise time	—	3.5	—		
t _{d(off)}	Turn-Off delay time	—	38	—		
t _f	Fall time	—	12	—		
C _{iss}	Input capacitance	—	950	—	pF	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz
C _{oss}	Output capacitance	—	113	—		
C _{riss}	Reverse transfer capacitance	—	75	—		

Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode) ①	—	—	-2.2	A	MOSFET symbol showing the integral reverse p-n junction diode. 
V _{SD}	Diode Forward Voltage	—	—	-1.2	V	I _S = -1.8A, 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 $T_A = 25^\circ\text{C}$

Typical Electrical and Thermal Characteristics

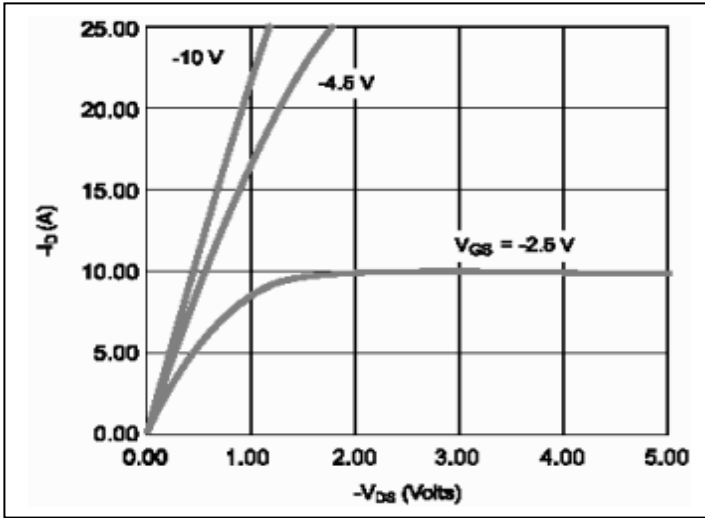


Figure 1. Typical Output Characteristics

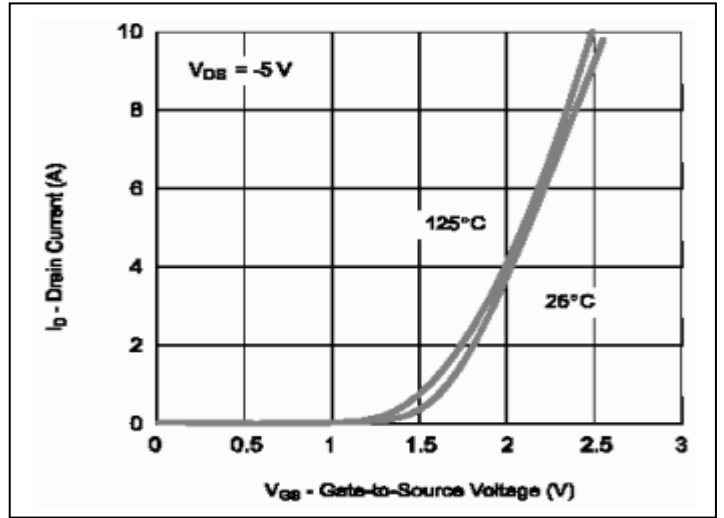


Figure 2. Transfer Characteristics

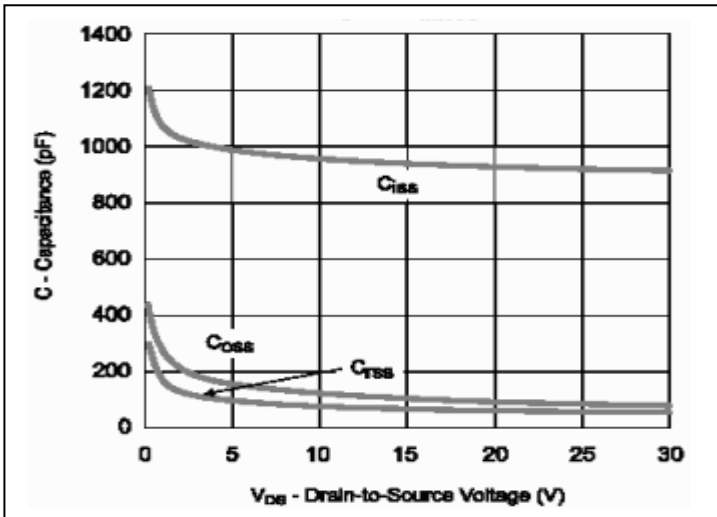
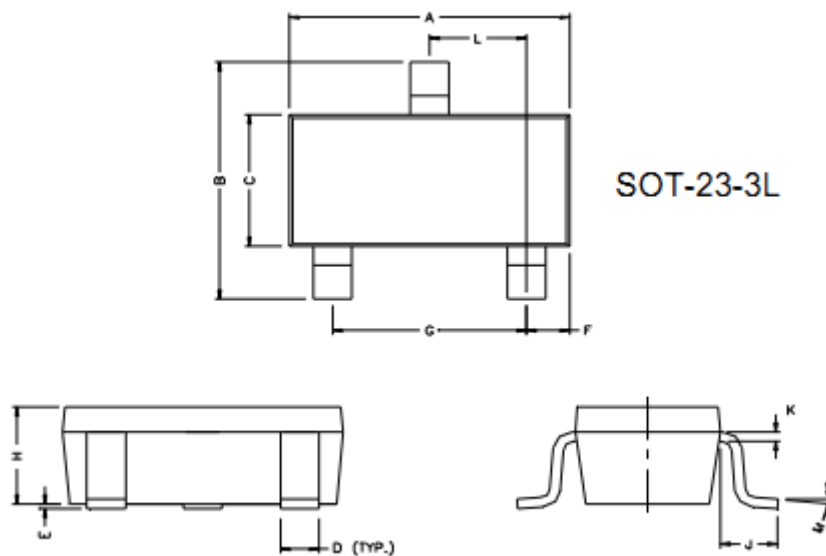


Figure 3. Typical Capacitance vs. Drain-to-Source Voltage

Mechanical Data:


REF.	Millimeter		REF.	Millimete	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.65	2.95	H	1.00	1.30
C	1.50	1.70	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

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