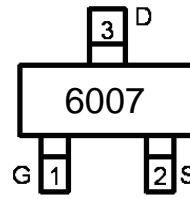
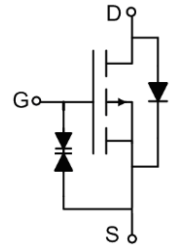


Main Product Characteristics:

V_{DSS}	-50V
$R_{DS(on)}$	2.1ohm(typ.)
I_D	-130mA


SOT-23

Marking and pin Assignment

Schematic diagram
Features and Benefits:

- Advanced MOSFET process technology
- Special designed for Line current interrupter in telephone sets, Relay, high speed and line transformer drivers and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery


Description:

It utilizes the latest processing techniques to achieve the high cell density and reduces the on-resistance. These features combine to make this design an extremely efficient and reliable device for use in line current interrupter in telephone sets 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	-130	mA
I_D @ TC = 100°C	Continuous Drain Current, V_{GS} @ -10V ^①	-100	
I_{DM}	Pulsed Drain Current ^②	-520	
P_D @TC = 25°C	Power Dissipation ^③	230	mW
V_{DS}	Drain-Source Voltage	-50	V
V_{GS}	Gate-to-Source Voltage	± 20	V
ESD	ESD Rating (HBM module)	1	KV
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	°C

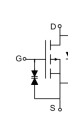
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
R _{θJA}	Junction-to-ambient (t ≤ 10s) ④	—	556	°C/W
	Junction-to-Ambient (PCB mounted, steady-state) ④	—	540	°C/W

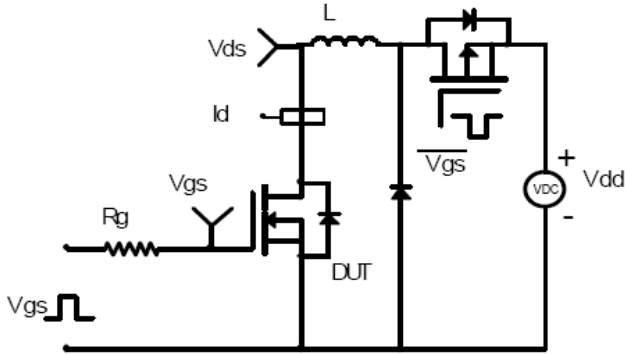
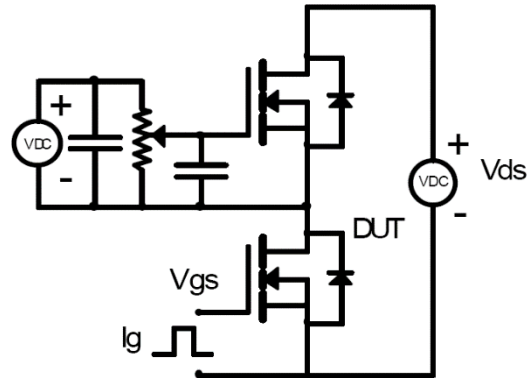
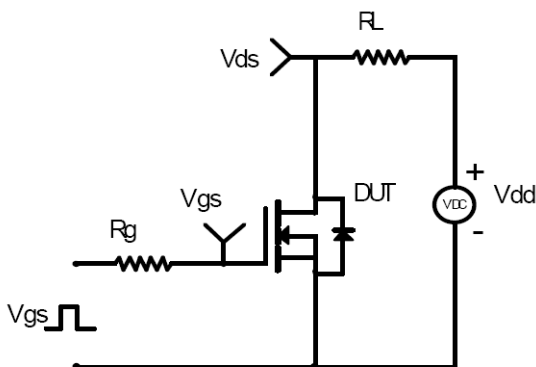
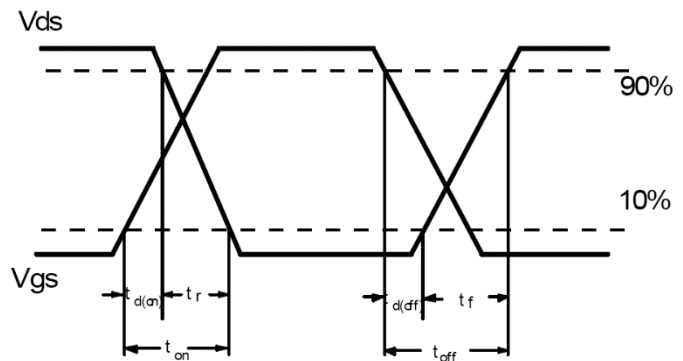
Electrical Characterizes @T_A=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	-50	—	—	V	V _{GS} = 0V, I _D = -10μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	2.1	7	Ω	V _{GS} = -10V, I _D = -130mA
V _{GS(th)}	Gate threshold voltage	-0.8	—	-2	V	V _{DS} = V _{GS} , I _D = -1mA
I _{DSS}	Drain-to-Source leakage current	—	—	-0.1	μA	V _{DS} = -40V, V _{GS} = 0V
		—	—	-1		V _{DS} = -50V, V _{GS} = 0V
		—	—	-50		T _J = 125°C
I _{GSS}	Gate-to-Source forward leakage	—	—	10	μA	V _{GS} = 20V
		—	—	-10		V _{GS} = -20V
g _{fs}	Forward Transconductance	50	—	—	mS	V _{DS} = -25 V I _D = -130mA
C _{iss}	Input Capacitance	—	30	—	pF	V _{GS} = 0;
C _{oss}	Output Capacitance	—	6	—		V _{DS} = -30 V;
C _{rss}	Reverse Transfer Capacitance	—	2.5	—		f = 1 MHz
t _{d(on)}	Turn-On Delay Time	—	3.1	—	ns	V _{DD} = -15V; I _D = -2.5 A; R _L = 50Ω
t _r	Rise Time	—	1.3	—		
t _{d(off)}	Turn-Off Delay Time	—	18	—		
t _f	Fall Time	—	7.5	—		

Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	130	mA	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode)	—	—	520	mA	
V _{SD}	Diode Forward Voltage	—	—	-1.3	V	I _S = -130mA, V _{GS} = 0V

Test Circuits and Waveforms

EAS Test Circuit:

Gate Charge Test Circuit:

Switching Time Test Circuit:

Switching Waveforms:


Notes:

- ① Calculated continuous current based on maximum allowable junction temperature.
- 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 $T_A = 25^\circ\text{C}$

Typical Electrical and Thermal Characteristics

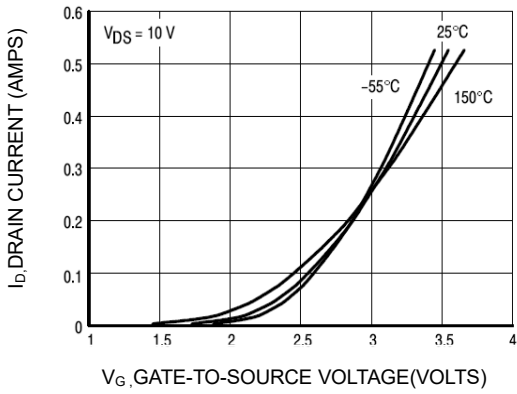


Figure1.Transfer Characteristics

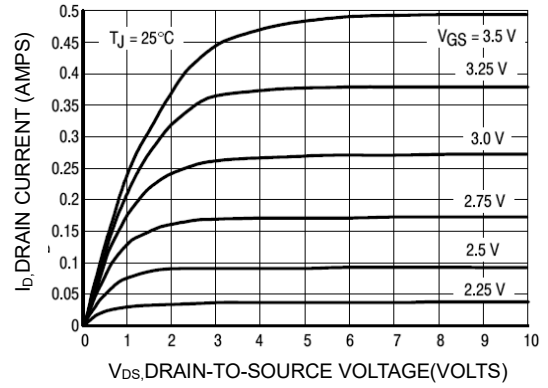


Figure2.Output Curve

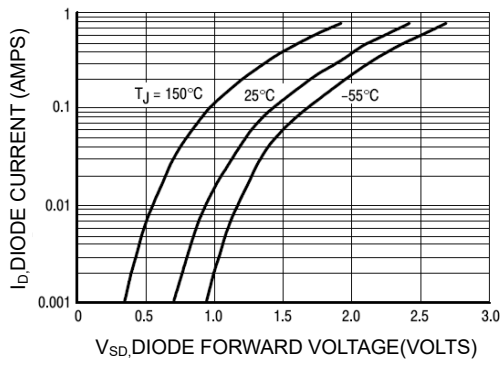
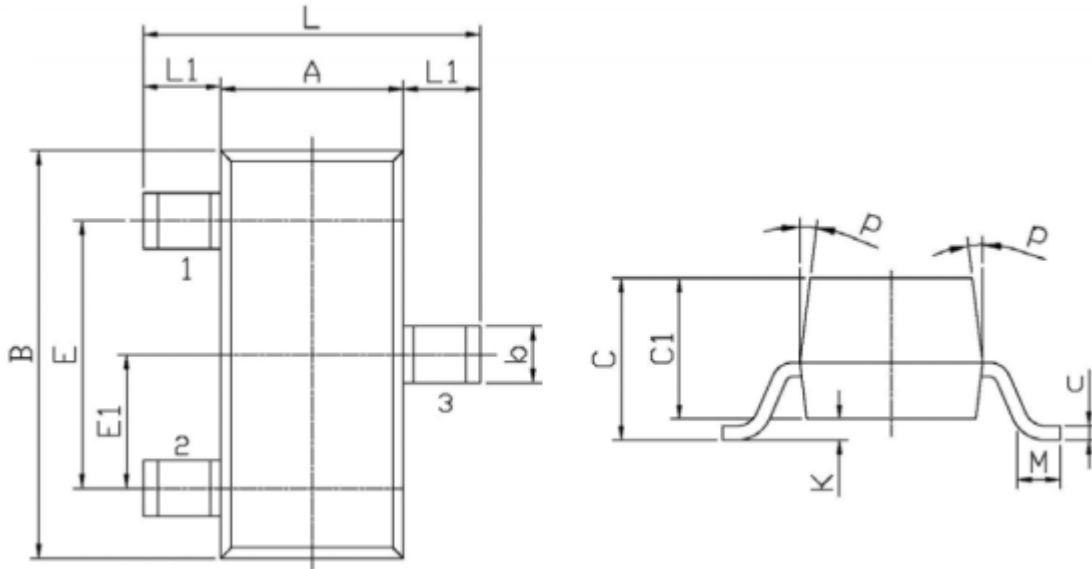


Figure3.Body Diode Forward Curve

SOT-23 PACKAGE INFORMATION
Dimensions in Millimeters (UNIT:mm)


Symbol	Dimensions in Millimeter		Symbol	Dimensions in Millimeter	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30 Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20 Min	
E1	0.85	1.05	P	7°	
b	0.35	0.55			

NOTES

1. All dimensions are in millimeters.
2. Tolerance $\pm 0.10\text{mm}$ (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

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