AT007SP030MSA

P-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	28mΩ@-10V	-7A
	40mΩ@-4.5V	

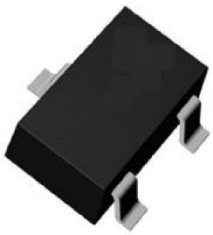
Feature

- Advanced trench process technology
- High density cell design for ultra low on-resistance

Application

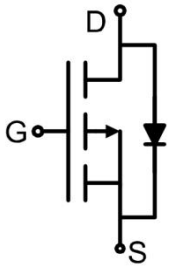
- Battery protection
- Load switch
- Power management

Package

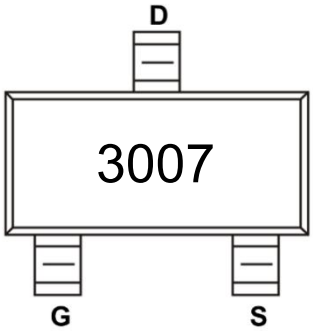


SOT-23

Circuit diagram



Marking



Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-7	A
Pulsed Drain Current	I_{DM}	-28	A
Power Dissipation	P_D	1.9	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-30V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1.0		-2.5	V
Drain-source on-resistance[1]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-7A			28	mΩ
		V_{GS} =-4.5V, I_D =-5A			40	
Dynamic characteristics[2]						
Input Capacitance	C_{iss}	V_{DS} =-15V,V_{GS} =0V,f =1MHz		652		pF
Output Capacitance	C_{oss}			107		
Reverse Transfer Capacitance	C_{rss}			92		
Total Gate Charge	Q_g	V_{DS} =-15V,V_{GS} =-10V, I_D =-7A		13.7		nC
Gate-Source Charge	Q_{gs}			2.1		
Gate-Drain Charge	Q_{gd}			3.3		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V, V_{GS} =-10V, I_D =-1A,R_{GEN}=6Ω		3.9		nS
Turn-on rise time	t_r			23.2		
Turn-off delay time	$t_{d(off)}$			51.4		
Turn-off fall time	t_f			22.3		
Source-Drain Diode characteristics						
Diode Forward Current[1]	I_S				-7	A
Diode Forward voltage	V_{DS}	V_{GS} =0V, I_S=-7A			-1.2	V

Notes:

1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.

2) Guaranteed by design, not subject to production testing.

Typical Characteristics

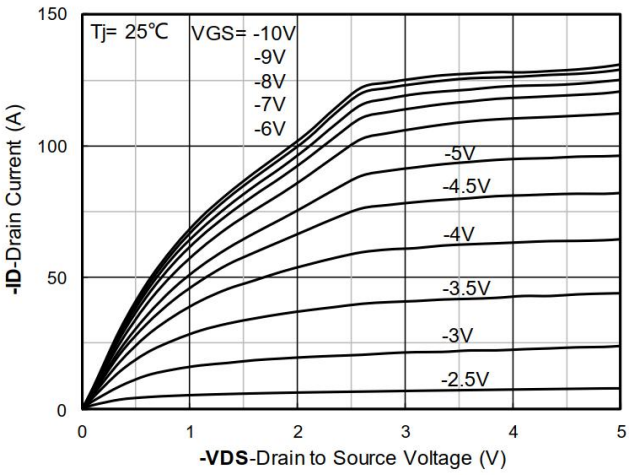


Figure 1. Output Characteristics

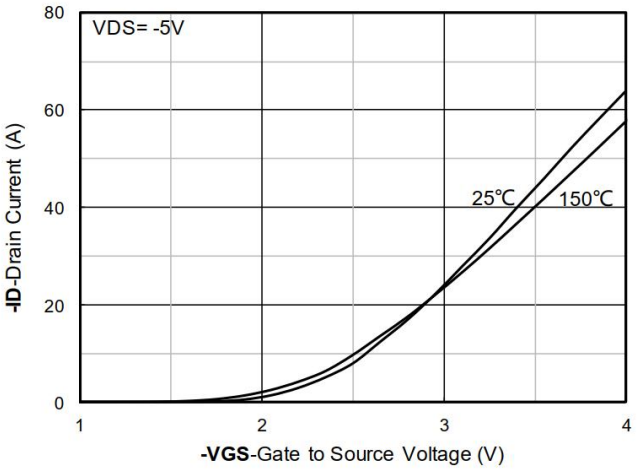


Figure 2. Transfer Characteristics

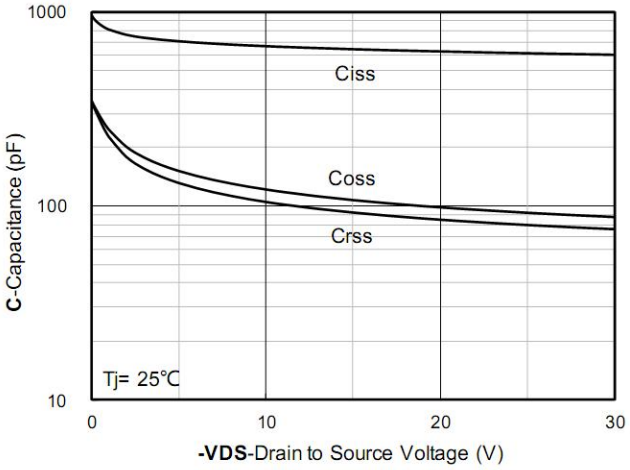


Figure 3. Capacitance Characteristics

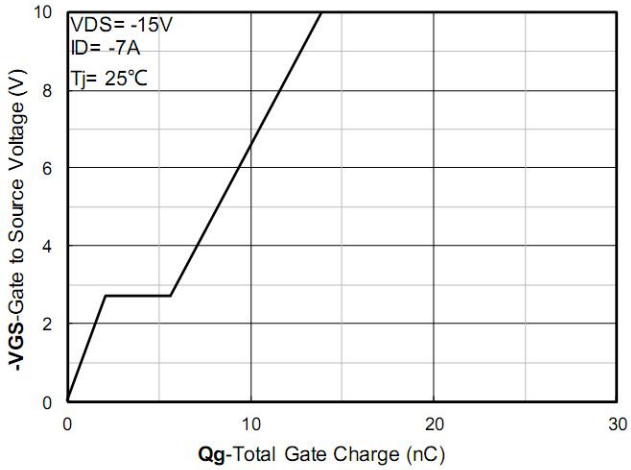


Figure 4. Gate Charge

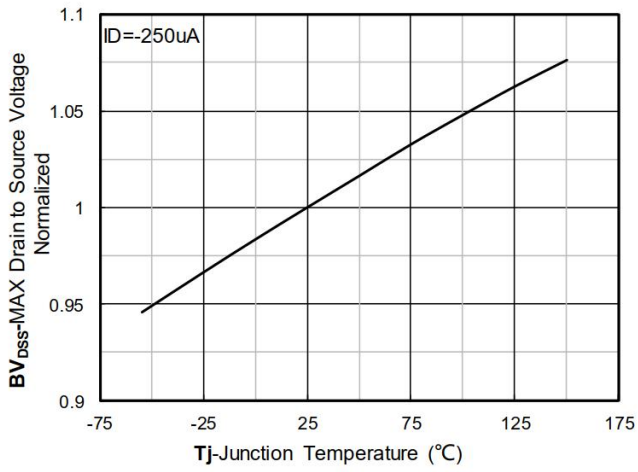


Figure 5. Normalized breakdown voltage

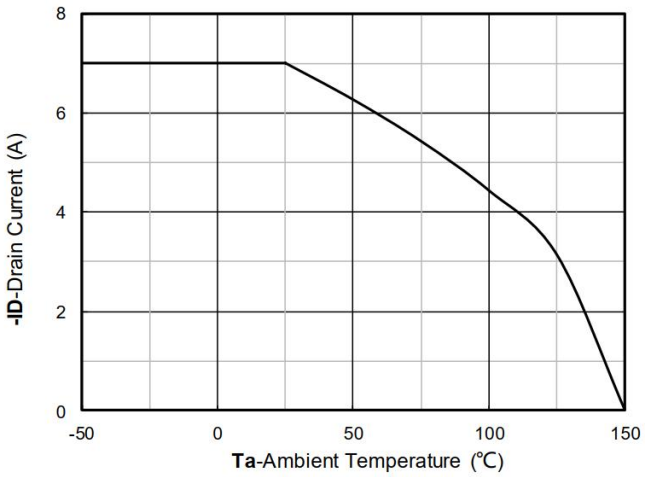
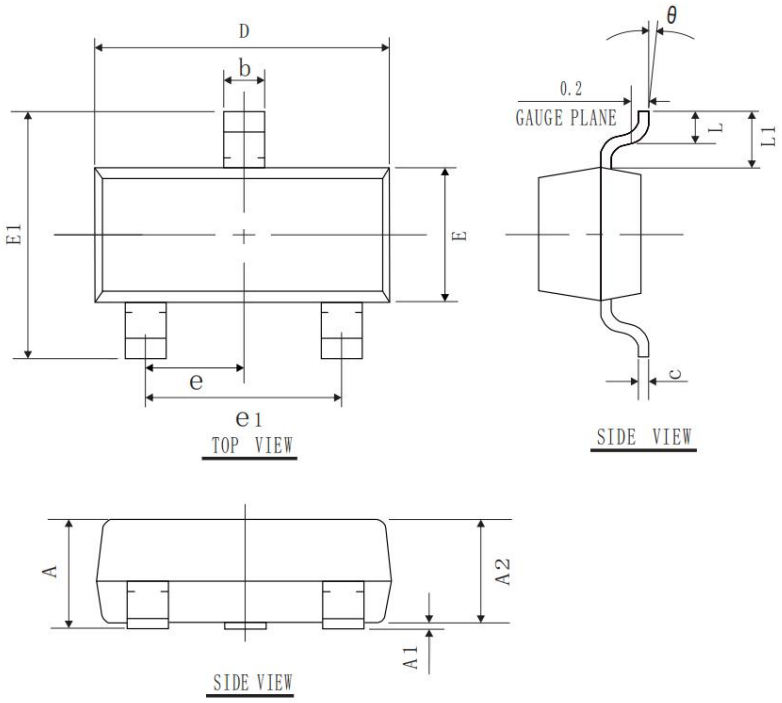


Figure 6. Current dissipation

SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.200	0.035	0.048
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.110	0.150	0.004	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.500	0.088	0.099
L	0.300	0.500	0.012	0.020
L1	0.550 REF		0.022 REF	
e	0.950 REF		0.037 REF	
e1	1.900 REF		0.075 REF	
θ	0°	10°	0°	10°