AT3407GSA

P-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	55mΩ@-10V	-4A
	85mΩ@-4.5V	

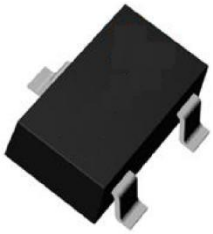
Feature

- Trench power LV MOSFET technology
- Low $R_{DS(on)}$
- Surface mount package

Application

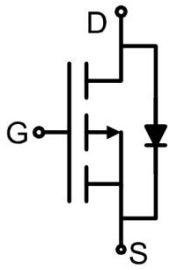
- Battery protection
- Hand-Held instruments
- Load switch
- Notebook

Package

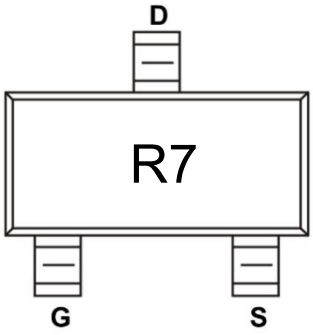


SOT-23

Circuit diagram



Marking



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P-Channel Enhancement Mode MOSFET

Absolute maximum ratings (T_A=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	-4	A
Pulsed Drain Current[1]	I_{DM}	-16	A
Power Dissipation	P_D	1.25	W
Thermal Resistance Junction to Ambient[2]	$R_{\theta JA}$	100	℃/W
Operating Junction Temperature	T_J	-55 ~ +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_{DS} =0V, V_{GS} =±20V			±100	nA
Gate threshold voltage[3]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1	-1.6	-2.2	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =-10V, I_D =-4A		44	55	mΩ
		V_{GS} =-4.5V, I_D =-3A		68	85	
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS} =-15V, V_{GS} =0V, f =1MHz		590		pF
Output Capacitance	C_{oss}			62		
Reverse Transfer Capacitance	C_{rss}			43		
Total Gate Charge	Q_g	V_{DS} =-15V, V_{GS} =-4.5V I_D =-4A		5.1		nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			2.2		
Turn-on delay time	$t_{d(on)}$	V_{DS} =-15V, V_{GS} =-10V I_D =-1A, R_G =3.3Ω		3.4		nS
Turn-on rise time	t_r			10.8		
Turn-off delay time	$t_{d(off)}$			26		
Turn-off fall time	t_f			7		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				-4	A
Diode Forward voltage[3]	V_{SD}	V_{GS} =0V, I_S=-3A			-1.2	V

Notes:

1) Repetitive rating: Pluse width limited by maximum junction temperature.

2) Surface Mounted on FR4 board, t≤10 sec.

3) Pulse test : Pulse width≤300μs, duty cycle≤2%.

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

Typical Characteristics

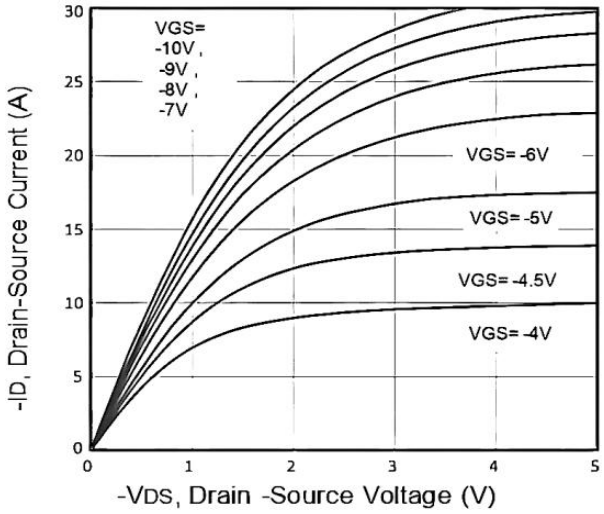


Fig1. Typical Output Characteristics

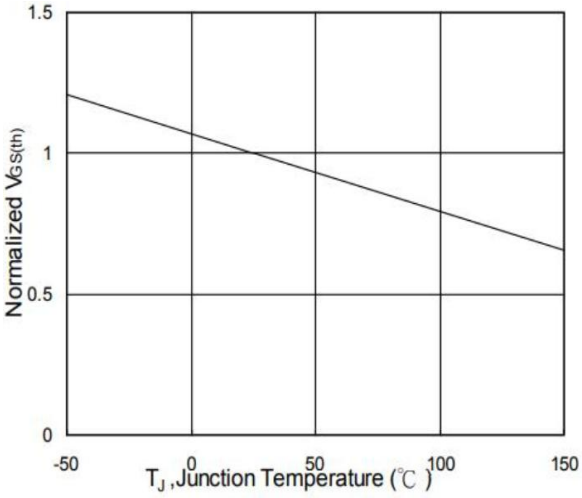


Fig2. Normalized Threshold Voltage Vs. Temperature

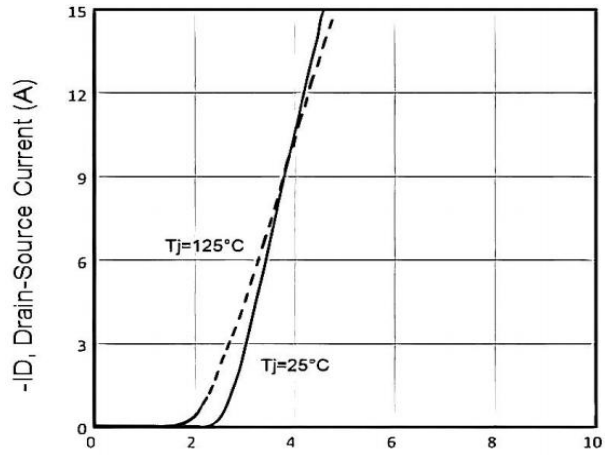


Fig3. Typical Transfer Characteristics

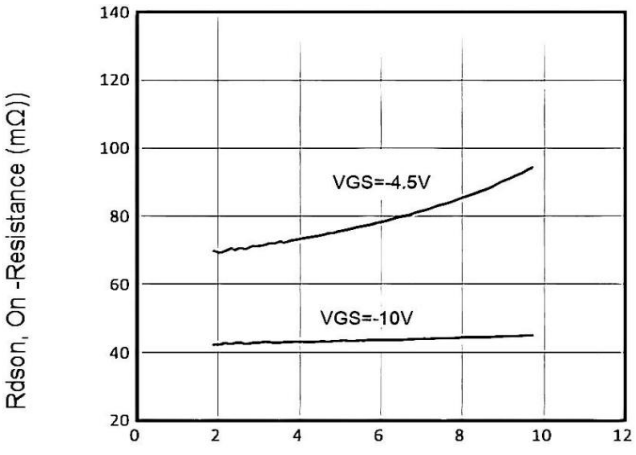


Fig4. On-Resistance vs. Drain Current and Gate

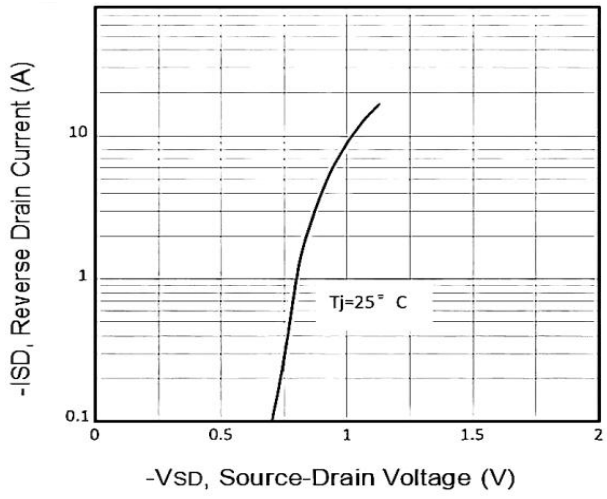


Fig5. Typical Source-Drain Diode Forward Voltage

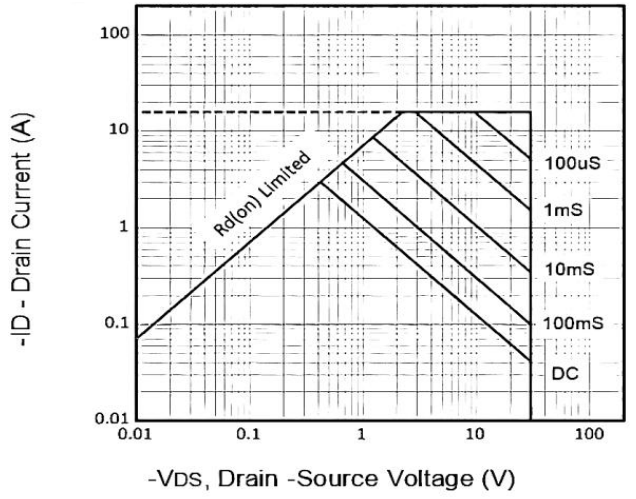


Fig6. Maximum Safe Operating Area

Typical Characteristics

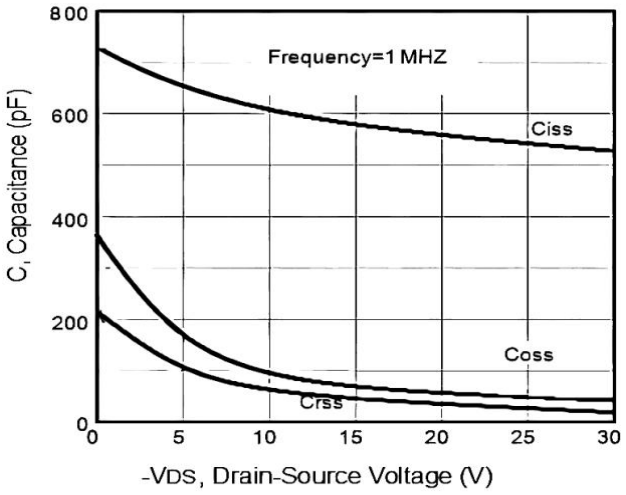


Fig7. Typical Capacitance Vs. Drain-Source Voltage

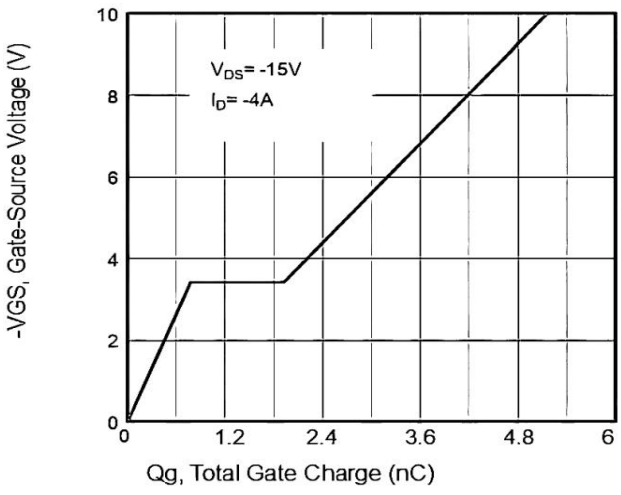
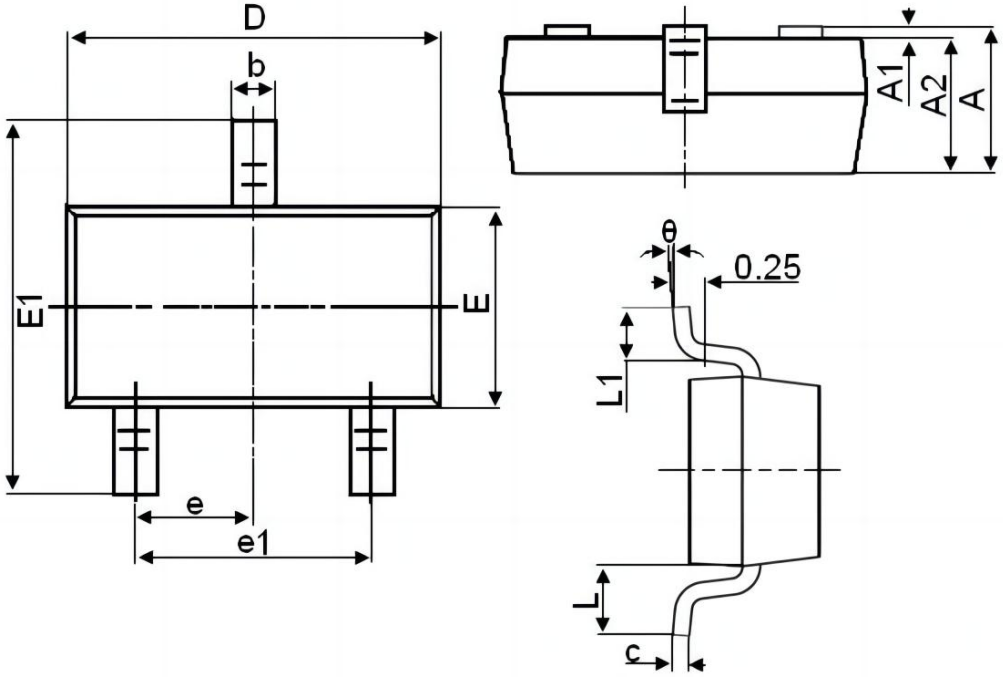


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions 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	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°