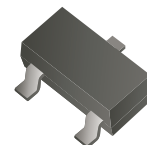


ACMSP2301T-HF

P-Channel
RoHS Device
Halogen Free



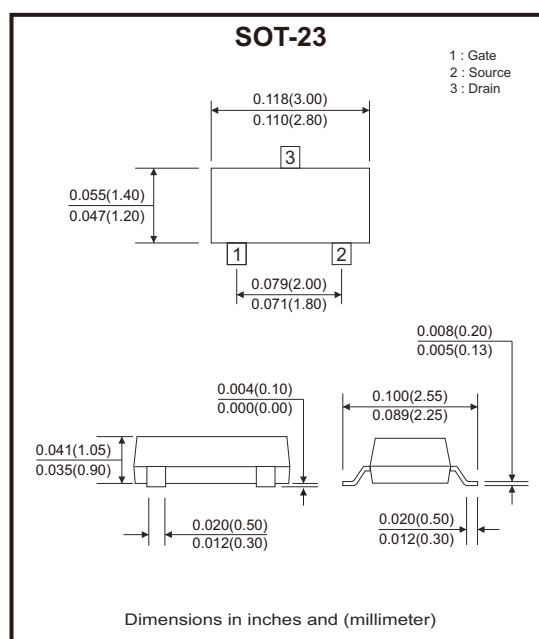
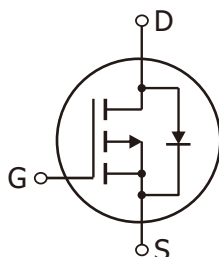
Features

- Advanced trench process technology.
- Load switching for portable applications.
- AEC-Q101 Qualified.

Mechanical data

- Case: SOT-23, molded plastic.
- Mounting position: Any.

Circuit Diagram



Maximum Ratings (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-source voltage	V_{DS}	-20	V
Gate-source voltage	V_{GS}	± 8	V
Continuous drain current	I_D	-2.3	A
Pulsed drain current	I_{DM}	-10	
Continuous source-drain diode current	I_S	-0.72	
Maximum power dissipation	P_D	0.4	W
Thermal resistance from junction to ambient ($t < 5s$)	$R_{\theta JA}$	312.5	$^{\circ}\text{C/W}$
Operation junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.7	-1	
Gate-source leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
Drain-source on-state resistance (Note 1)	R _{DS(on)}	V _{GS} = -4.5V, I _D = -2.8A		0.090	0.112	Ω
		V _{GS} = -2.5V, I _D = -2.0A		0.110	0.142	
Forward transconductance (Note 1)	g _{fs}	V _{DS} = -5V, I _D = -2.8A		6.5		S
Dynamic (Note 2)						
Input capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		405		pF
Output capacitance	C _{oss}			75		
Reverse transfer capacitance	C _{rss}			55		
Total gate charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -3A		5.5	10	nC
		V _{DS} = -10V, V _{GS} = -2.5V, I _D = -3A		3.3	6	
Gate-source charge	Q _{gs}			0.7		
Gate-drain charge	Q _{gd}			1.3		
Gate resistance	R _g	f = 1MHz		6.0		Ω
Turn-on delay time	t _{d(on)}	V _{DD} = -10V, R _L = 10Ω, I _D = -1A V _{GEN} = -4.5V, R _g = 1Ω		11	20	nS
Rise time	t _r			35	60	
Turn-off delay time	t _{d(off)}			30	50	
Fall time	t _f			10	20	
Drain-source body diode characteristics						
Continuous source-drain diode current	I _s	T _C = 25°C			-1.3	A
Pulse diode forward current (Note 1)	I _{SM}				-10	
Body diode voltage	V _{SD}	I _s = -0.7A		-0.8	-1.2	V

Notes: 1. Pulse test: Pulse width < 300 μs , duty cycle < 2%

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

Typical Rating and Characteristic Curves (ACMSP2301T-HF)

Fig.1 - Output Characteristics

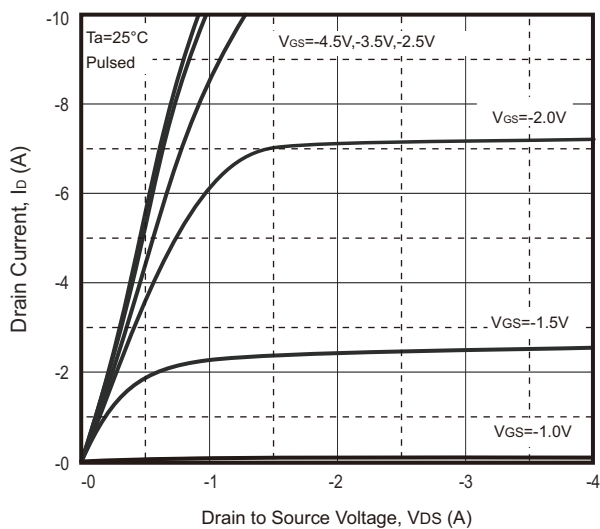


Fig.2 - Transfer Characteristics

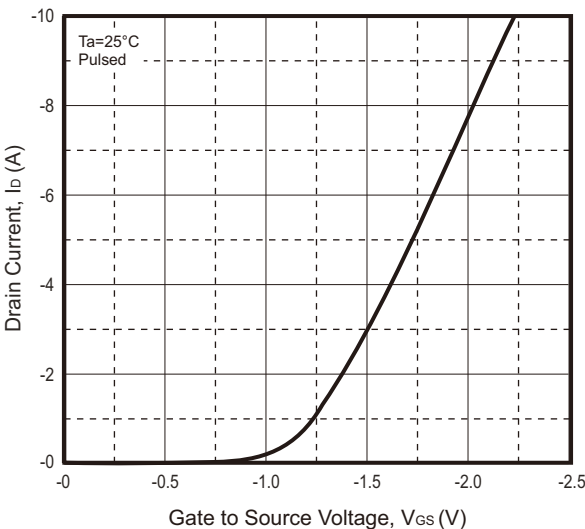


Fig.3 - $R_{DS(ON)}$ — I_D

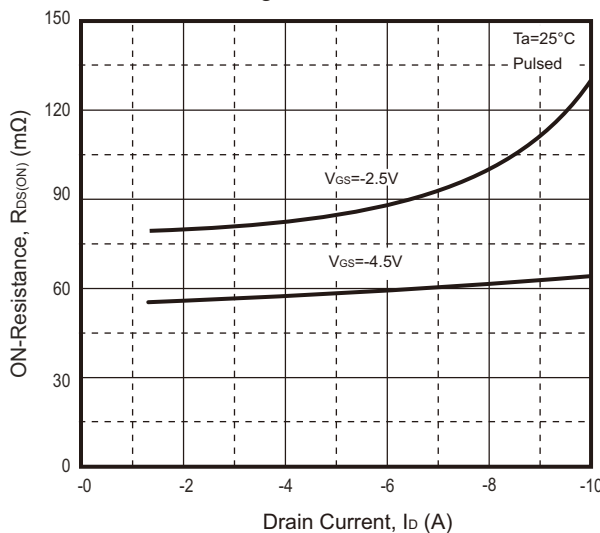


Fig.4 - $R_{DS(ON)}$ — V_{GS}

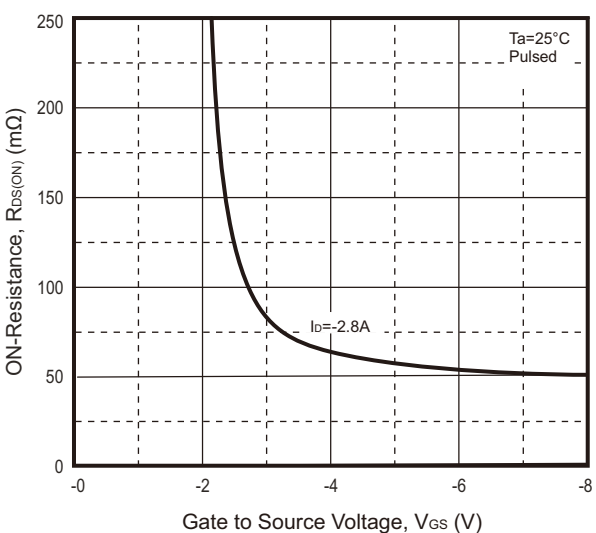
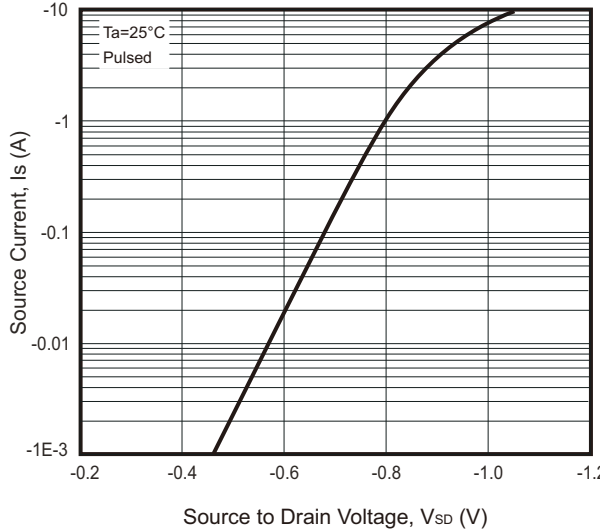
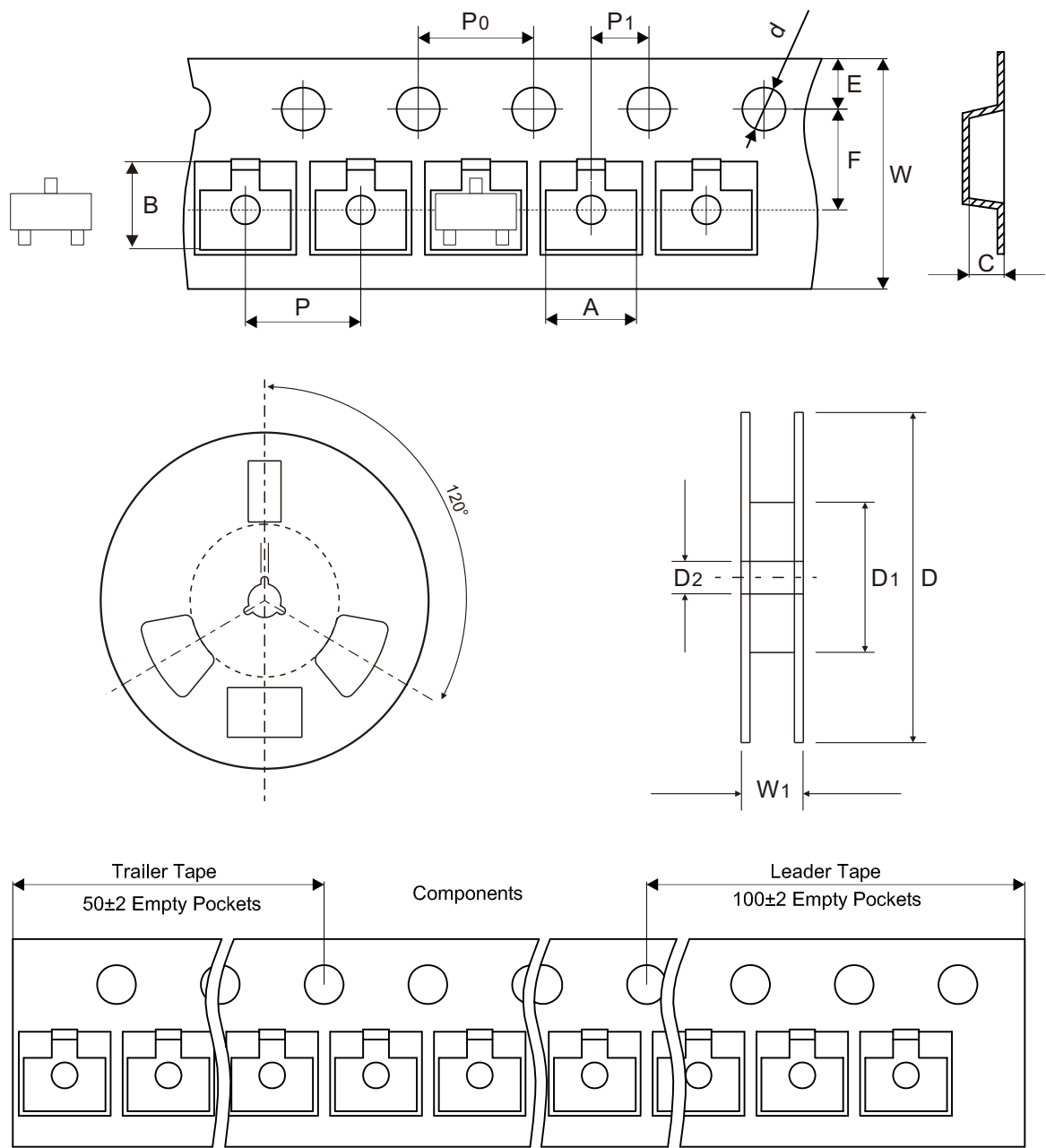


Fig.5 - I_S — V_{SD}



Reel Taping Specification

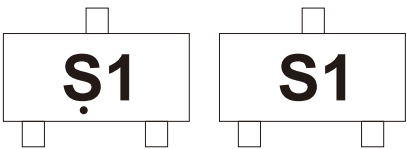


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.40 ± 0.40	13.00 ± 0.20
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.142 ± 0.016	0.512 ± 0.008

SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 - 0.10	12.10 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 - 0.004	0.476 ± 0.039

Marking Code

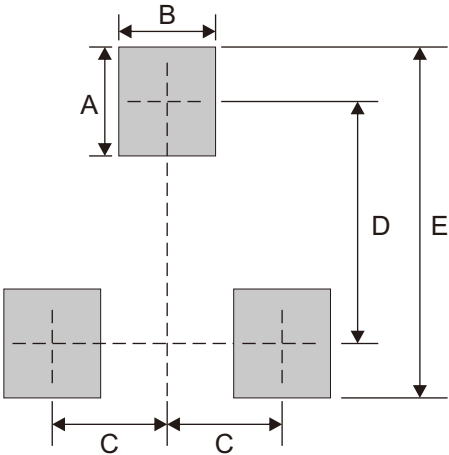
Part Number	Marking Code
ACMSP2301T-HF	S1



Solid dot = Control code

Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7