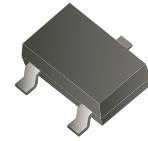


# ACMS03N06T-HF

N-Channel  
RoHS Device  
Halogen Free



## Features

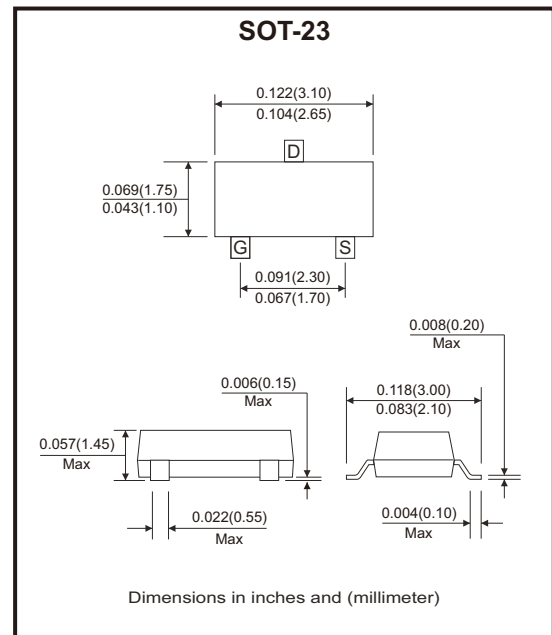
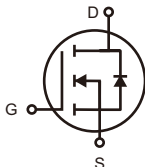
- Improved dv/dt capability.
- Fast switching.
- $R_{DS(ON)} \leq 100\text{m}\Omega @ V_{GS}=10\text{V}$ .
- AEC-Q101 Qualified.

## Mechanical data

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

## Circuit Diagram

- G : Gate
- S : Source
- D : Drain



## Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DS}$	60	V
Gate-source voltage	$V_{GS}$	$\pm 20$	V
Drain current-continuous	$I_D$	3	A
Drain current-pulsed (Note 1)	$I_{DM}$	12	A
Power dissipation (Note 1)	$P_D$	1.5	W
Thermal resistance junction-ambient	$R_{\theta JA}$	83.3	$^{\circ}\text{C}/\text{W}$
Operating junction temperature range	$T_J$	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	$T_{STG}$	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-source breakdown voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Drain-source leakage current	$I_{DSS}$	$V_{DS} = 48V, V_{GS} = 0V$			1	$\mu A$
Gate-source leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
<b>On Characteristics</b>						
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 2A$			100	m $\Omega$
		$V_{GS} = 4.5V, I_D = 1A$			110	
Gate threshold voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	1.0		2.5	V
<b>Dynamic and Switching Characteristics (Note 3)</b>						
Total gate charge	$Q_g$	$V_{DS} = 30V, V_{GS} = 4.5V, I_D = 2A$		7		nC
Gate-source charge	$Q_{GS}$			1.2		
Gate-drain charge	$Q_{GD}$			1.5		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30V, V_{GS} = 10V, R_{GEN} = 1\Omega, I_D = 2A$		6.5		nS
Rise time	$t_r$			15.2		
Turn-off delay time	$t_{d(off)}$			15.2		
Fall time	$t_f$			10.3		
Input capacitance	$C_{iss}$	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$		515		pF
Output capacitance	$C_{oss}$			26		
Reverse transfer capacitance	$C_{rss}$			20		
<b>Drain-Source Diode Characteristics and Ratings</b>						
Continuous source current	$I_S$				3	A
Diode forward voltage	$V_{SD}$	$V_{GS} = 0V, I_S = 1A$			1.2	V

Notes: 1. Pulse width limited by maximum junction temperature.

2. The data tested by pulsed, pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .

3. This value is guaranteed by design hence it is not included in the production test.

## Rating and Characteristic Curves (ACMS03N06T-HF)

Fig.1 - Drain Current

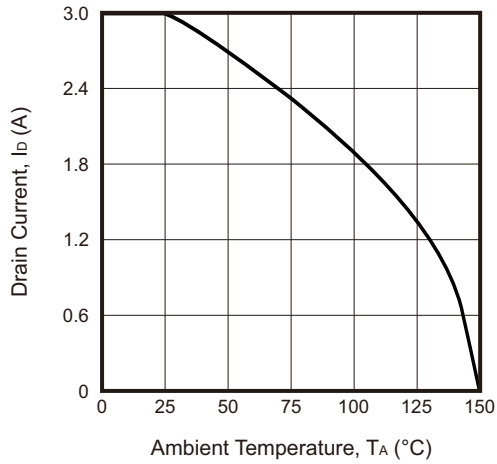


Fig.2 - Normalized  $V_{GS(th)}$  vs.  $T_J$

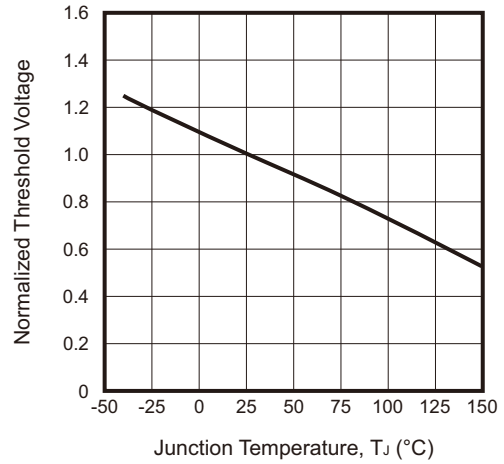


Fig.3 - Normalized  $R_{DS(on)}$  vs.  $T_J$

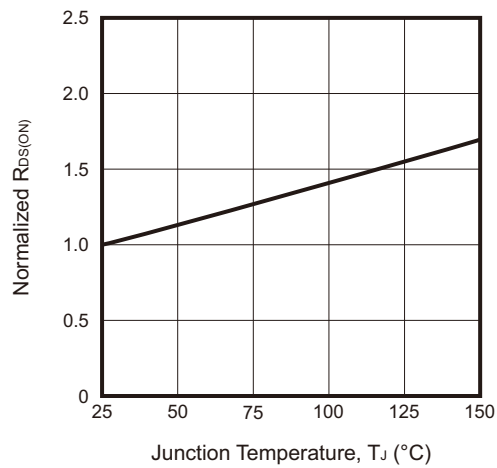


Fig.4 - Gate Charge Characteristics

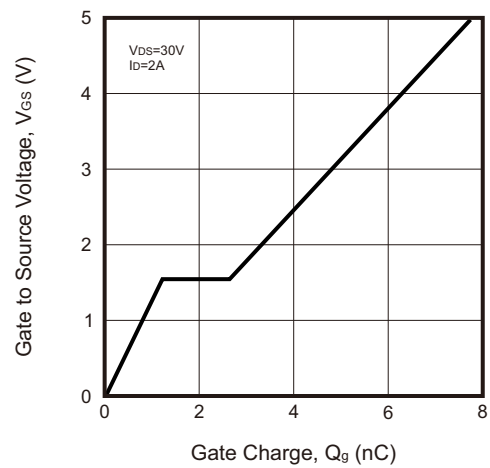


Fig.5 - Transfer Characteristics

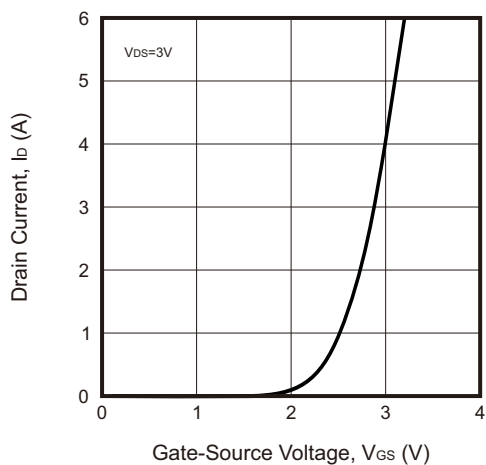
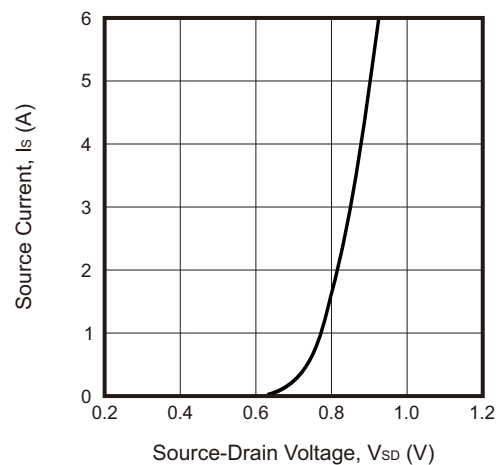
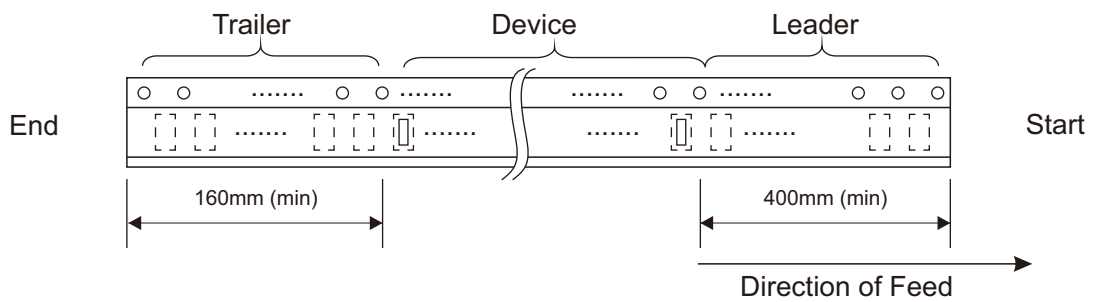
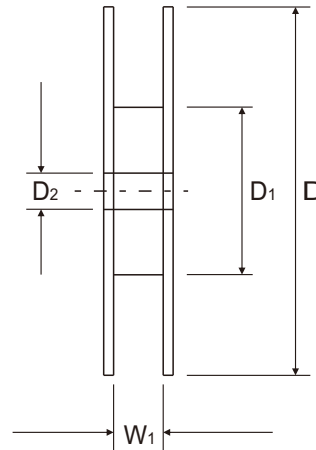
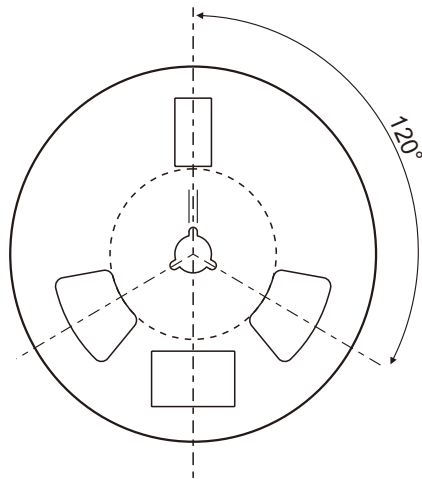
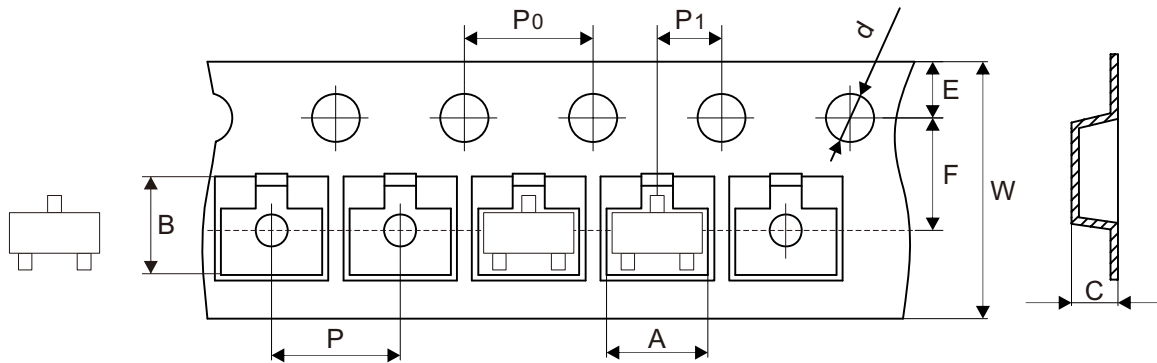


Fig.6 - Forward Characteristics



Reel Taping Specification

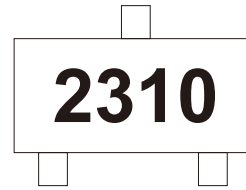


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.25	2.95 ± 0.35	1.35 ± 0.25	1.50 ± 0.10	178.00 ± 2.00	49.00 Min	13.00 ± 0.50
	(inch)	0.124 ± 0.010	0.116 ± 0.014	0.053 ± 0.010	0.059 ± 0.004	7.008 ± 0.079	1.929 Min	0.512 ± 0.020

SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 ± 0.30	9.80 ± 1.80
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 ± 0.012	0.386 ± 0.071

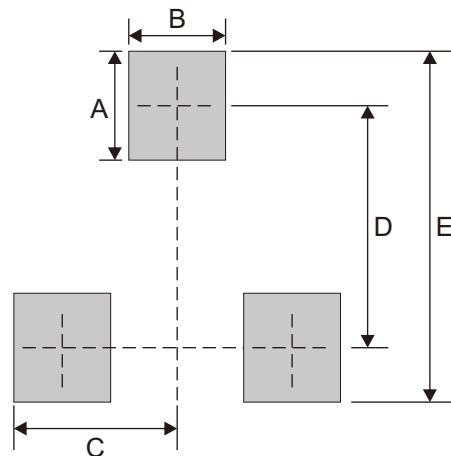
## Marking Code

Part Number	Marking Code
ACMS03N06T-HF	2310



## Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	1.35	0.053
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