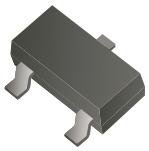
MOSFET

ACMS0KP06T-HF

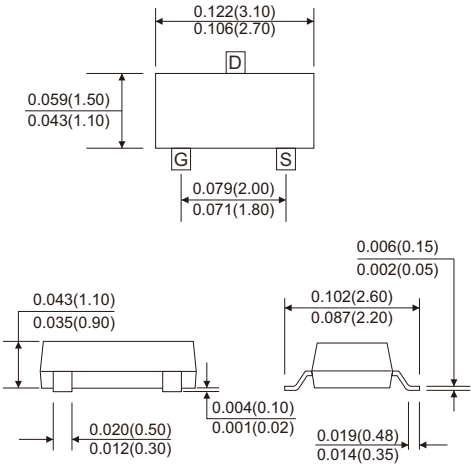
P-Channel
RoHS Device
Halogen Free



Features

- Voltage controlled P-Channel small signal switch.
- High density cell design for low $R_{DS(ON)}$.
- High saturation current.
- AEC-Q101 Qualified.

SOT-23



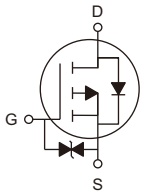
Dimensions in inches and (millimeter)

Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Matte tin plated; solderable per MIL-STD-202, method 208.

Circuit Diagram

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



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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-60	V
Gate-source voltage	V_{GS}	±20	V
Continuous drain current	I_D	-0.5	A
Pulsed drain current	I_{DM}	-2	A
Power dissipation	P_D	0.36	W
Thermal resistance junction to air	$R_{\theta JA}$	350	°C/W
Operating junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Electrical Characteristics (at T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D = -250μA	-60			V
Drain-source leakage current	I_{DSS}	V_{DS} = -50V, V_{GS} = 0V			-100	nA
Gate-body leakage current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±10	μA
On Characteristics						
Drain-source on-resistance (Note 1)	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -0.2A			3	Ω
	$R_{DS(on)}$	V_{GS} = -10V, I_D = -0.5A			2	Ω
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1	-1.8	-3	V
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -25V, f = 1MHz		50		pF
Output capacitance	C_{oss}			15		
Reverse transfer capacitance	C_{rss}			5		
Switching Characteristics						
Turn-on delay time (Note 2)	$t_{d(on)}$	V_{DD} = -30V, I_D = -0.27A V_{GS} = -10V, R_G = 6Ω		2.5	5	ns
Turn-on rise time (Note 2)	t_r			6.3	13	
Turn-off delay time (Note 2)	$t_{d(off)}$			10	20	
Turn-off fall time (Note 2)	t_f			4.8	9.6	
Total gate charge	Q_g	V_{DS} = -25V, I_D = -0.1A, V_{GS} = -5V		0.9	1.3	nC
Gate to source charge	Q_{gs}			0.2		
Gate to drain (miller) charge	Q_{gd}			0.3		
Source-Drain Diode Characteristics						
Diode forward voltage (Note 1)	V_{SD}	I_{SD} = -0.26A, V_{GS} = 0V		-0.8	-1.4	V
Diode continuous forward current	I_S	T_C = 25°C			-0.5	A

Notes: 1. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production.

Typical Rating and Characteristic Curves (ACMS0KP06T-HF)

Fig.1 - On-Region Characteristics

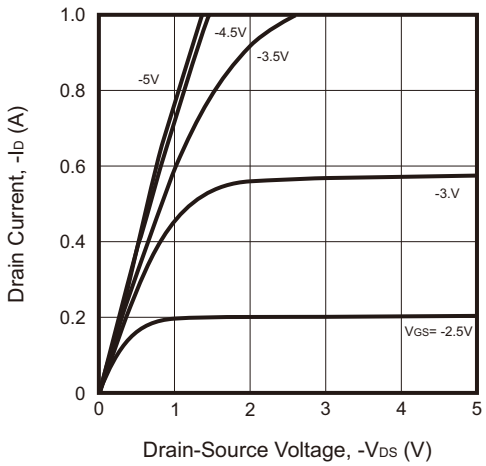


Fig.2 - On-Resistance Variation with Drain Current and Gate Voltage

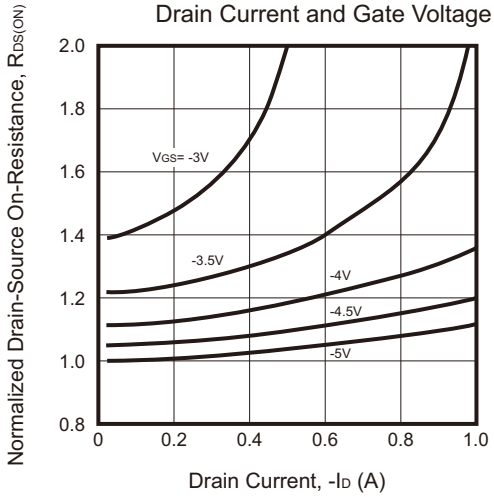


Fig.3 - On-Resistance Variation with Junction Temperature

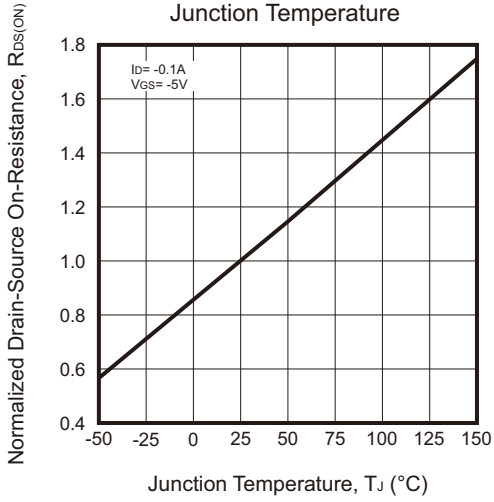


Fig.4 - On-Resistance Variation with Gate-Source Voltage

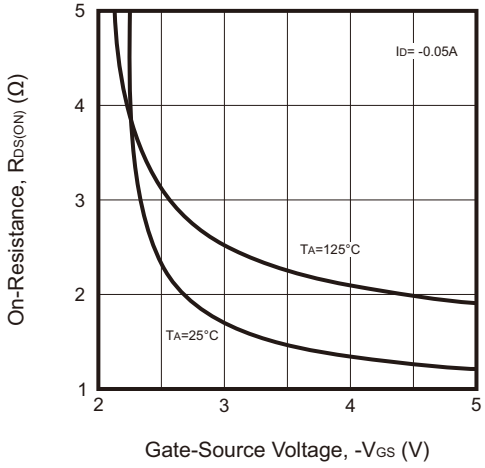


Fig.5 - Transfer Characteristics

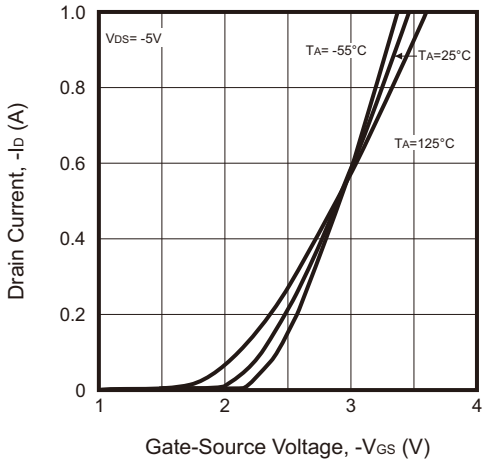
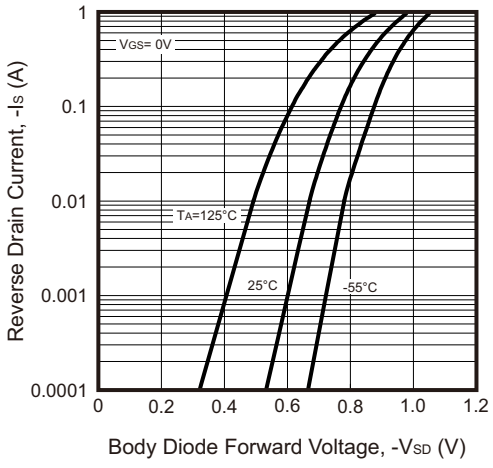


Fig.6 - Body-Diode Forward Voltage Variation with Source Current and Temperature



Typical Rating and Characteristic Curves (ACMS0KP06T-HF)

Fig.7 - Gate-Charge Characteristics

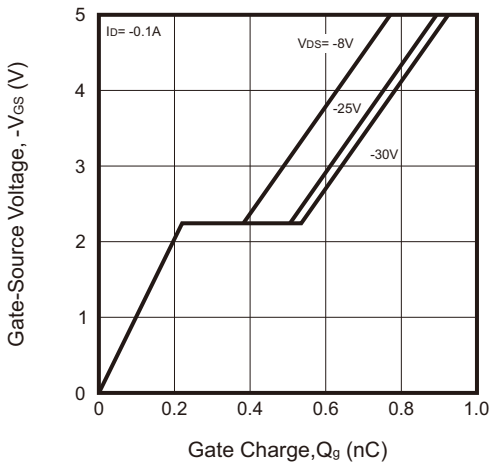


Fig.8 - Capacitance Characteristics

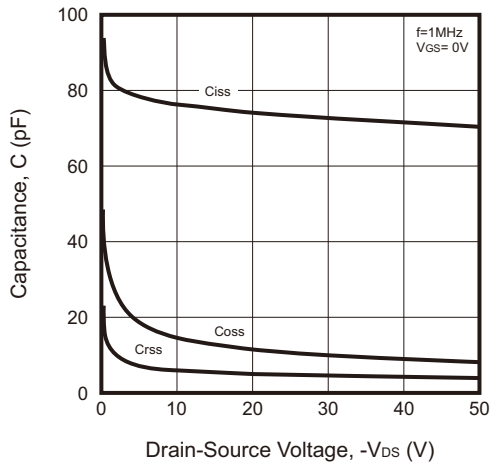


Fig.9 - Maximum Safe Operating Area

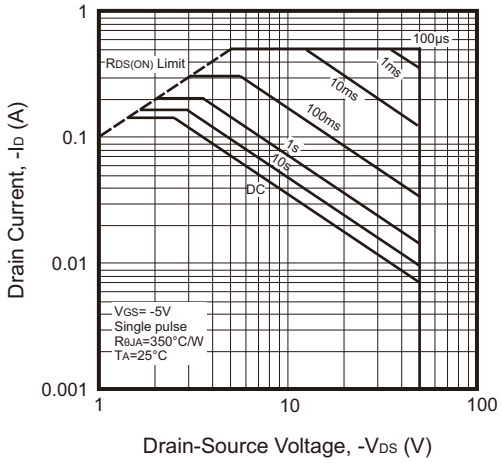
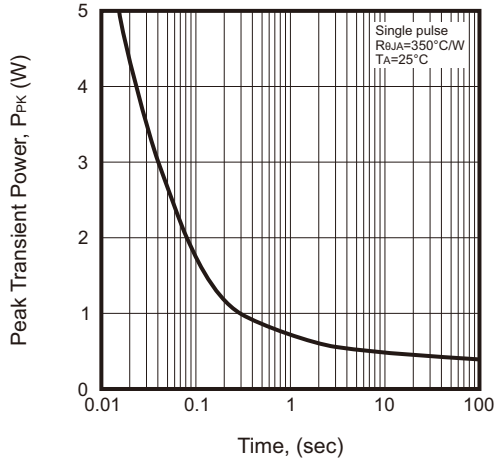
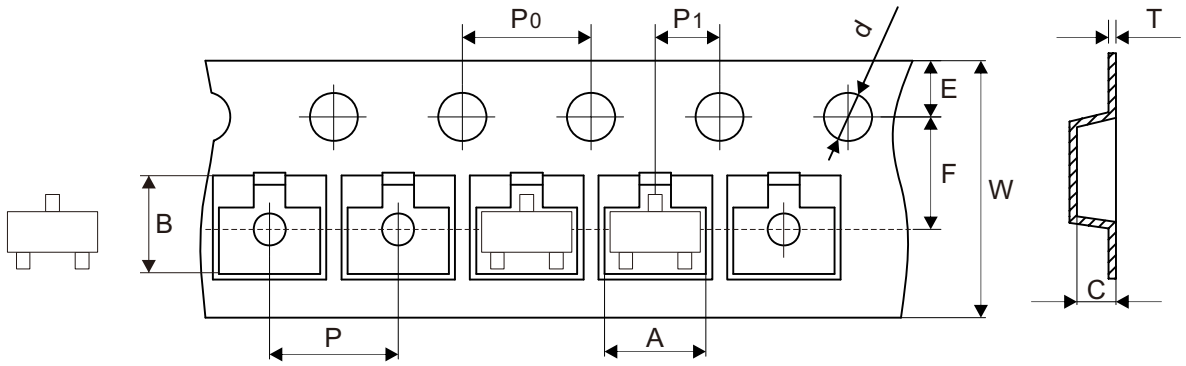
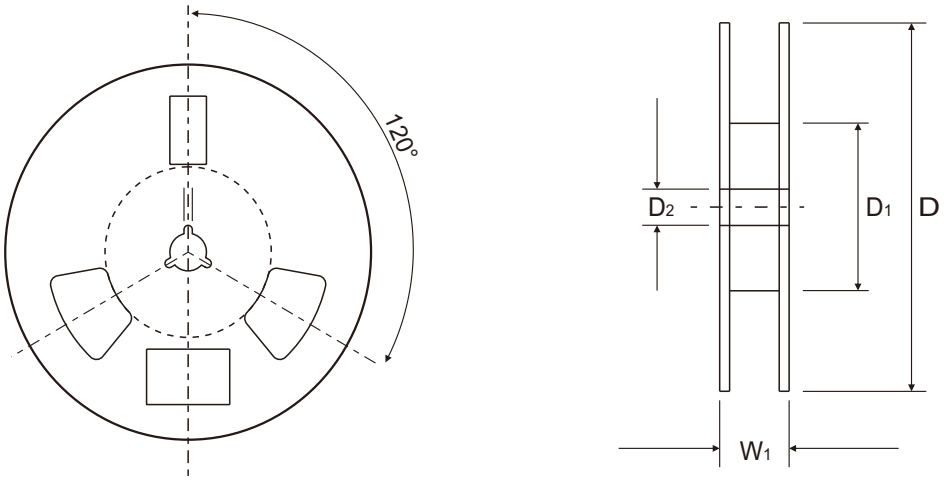


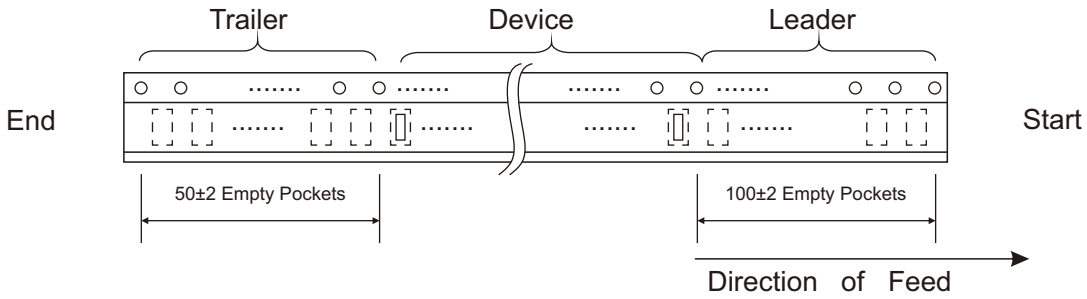
Fig.10 - Single pulse Maximum Power Dissipation



Reel Taping Specification





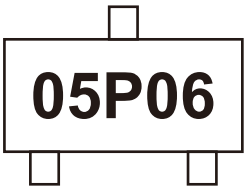


	SYMBOL	A	B	C	d	D	D_1	D_2
SOT-23	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 ± 0.10	178.00 ± 1.00	54.00 ± 0.50	13.00 ± 0.50
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 ± 0.004	7.008 ± 0.039	2.126 ± 0.020	0.512 ± 0.020

	SYMBOL	E	F	P	P_0	P_1	T	W	W_1
SOT-23	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	8.00 ± 0.30	12.50 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 ± 0.012	0.492 ± 0.039

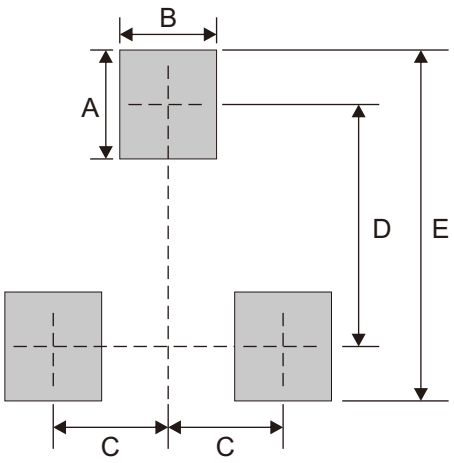
Marking Code

Part Number	Marking Code
ACMS0KP06T-HF	05P06



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