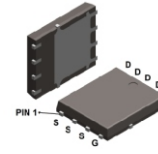


# ACMS05P06H8-HF

**P-Channel**  
**RoHS Device**  
**Halogen Free**

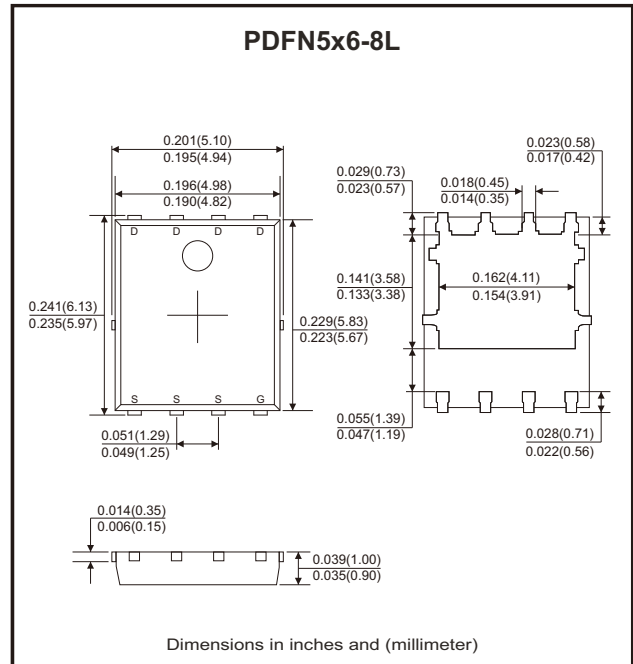


## Features

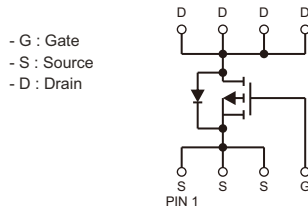
- Low  $R_{DS(ON)}$ .
- AEC-Q101 Qualified.

## Mechanical data

- Case: PDFN5x6-8L, molded plastic.
- Molding compound: UL flammability classification rating 94V-0.
- Terminals: Matte tin plated leads, solderable per MIL-STD-202, method 208.



## Circuit Diagram



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

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DSS}$	-60	V
Gate-source voltage	$V_{GSS}$	$\pm 20$	V
Continuous drain current ( $V_{GS}=-10V$ )	$I_D$	-5.7	A
Continuous drain current ( $V_{GS}=-10V, T_A=70^{\circ}C$ )	$I_D$	-4.5	
Pulsed drain current (10 $\mu s$ pulse, duty cycle=1%)	$I_{DM}$	-45	A
Power dissipation	$P_D$	2.4	W
Thermal resistance junction to case (Note 2)	$R_{\theta JC}$	2.4	$^{\circ}C/W$
Thermal resistance junction to air (Note 1)	$R_{\theta JA}$	52	$^{\circ}C/W$
Operating junction temperature range	$T_J$	-55 to +150	$^{\circ}C$
Storage temperature range	$T_{STG}$	-55 to +150	$^{\circ}C$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -48V, V_{GS} = 0V$			-1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
<b>On Characteristics (Note 3)</b>						
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -5A$			50	m $\Omega$
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -4A$			70	m $\Omega$
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1		-3	V
<b>Dynamic Characteristics</b>						
Input capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = -30V, f = 1MHz$		3129		pF
Output capacitance	$C_{oss}$			173		
Reverse transfer capacitance	$C_{rss}$			162.6		
<b>Switching Characteristics</b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -30V, V_{GS} = -10V, R_G = 3\Omega$		13		ns
Turn-on rise time	$t_r$			17		
Turn-off delay time	$t_{d(off)}$			50		
Turn-off fall time	$t_f$			20		
Total gate charge	$Q_g$	$V_{DD} = -30V, I_D = -15A, V_{GS} = -10V$		53		nC
Gate to source charge	$Q_{gs}$			15		
Gate to drain (miller) charge	$Q_{gd}$			13		
<b>Source-Drain Diode Characteristics</b>						
Diode forward voltage	$V_{SD}$	$I_{SD} = -15A, V_{GS} = 0V$			-1.2	V

Notes: 1. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

2. Thermal resistance from junction to soldering point (on the exposed drain pad).

3. The data tested by pulsed, pulse width  $\leq 380\mu s$ , duty cycle  $\leq 2\%$ .

## Rating and Characteristic Curves (ACMS05P06H8-HF)

Fig.1 - Typical Output Characteristics

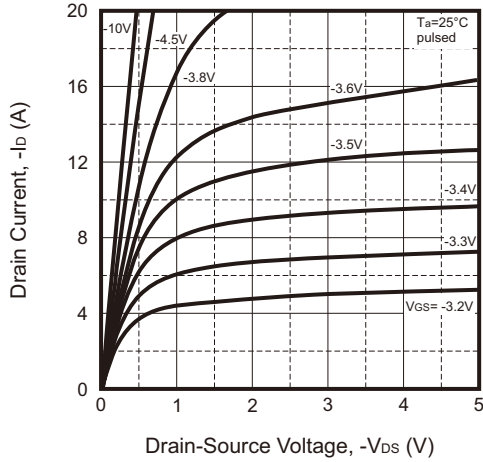


Fig.2 - On-Resistance vs. Continuous Drain Current

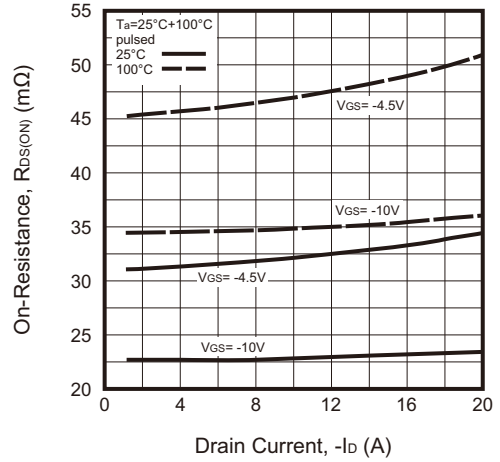


Fig.3 - On-Resistance vs. Gate-Source Voltage

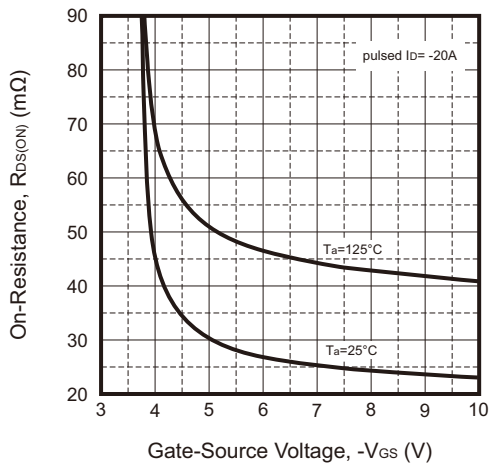


Fig.4 - Body-Diode Characteristics

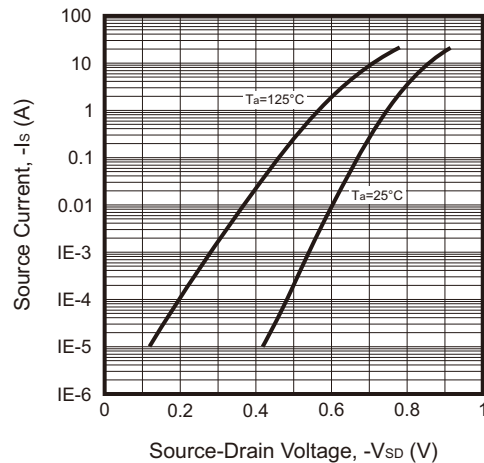


Fig.5 - Gate Threshold Voltage vs. Junction Temperature

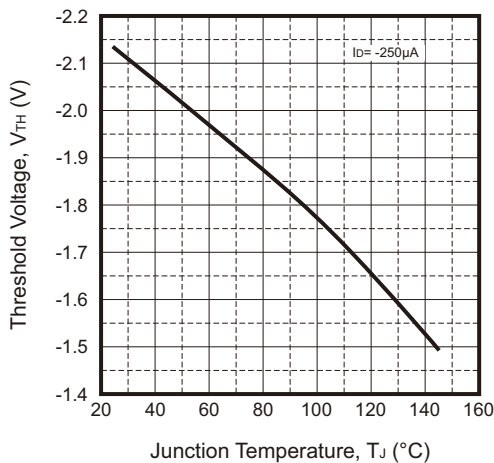
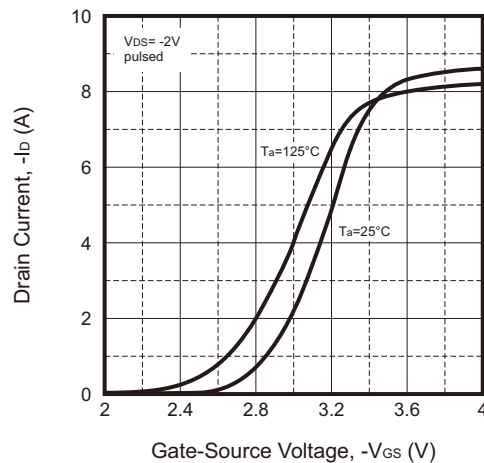
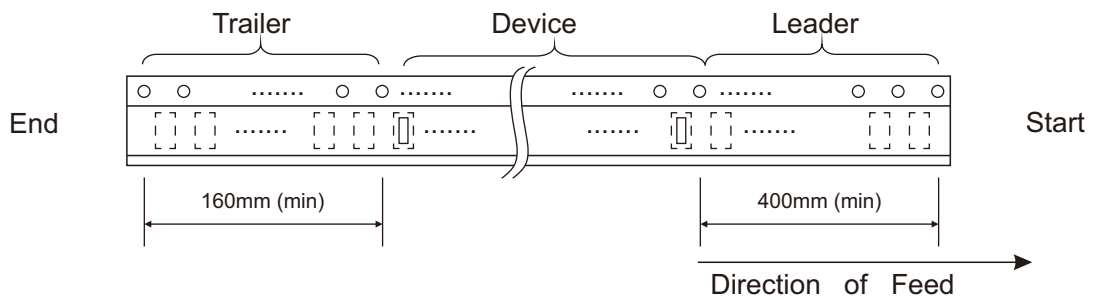
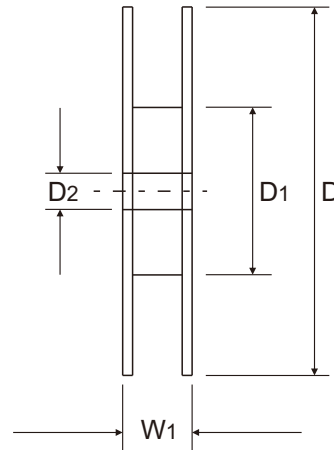
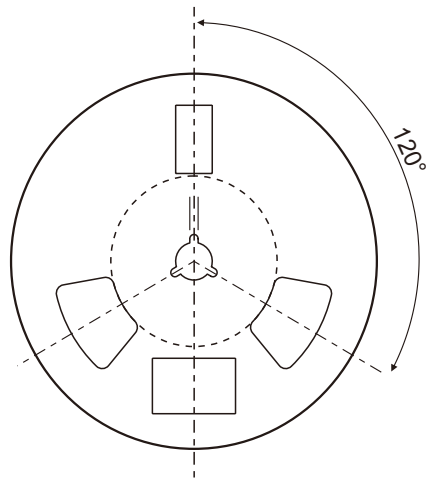
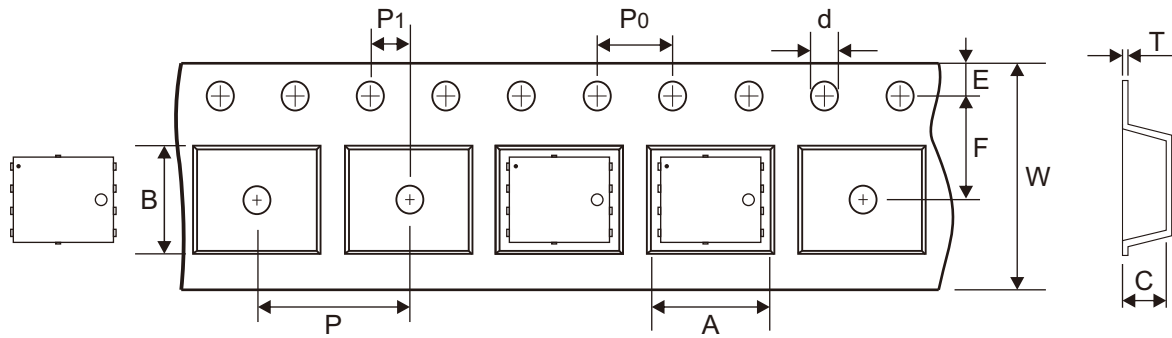


Fig.6 - Transfer Characteristics



Reel Taping Specification

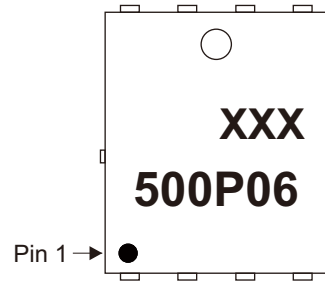


PDFN5x6-8L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	6.30 ± 0.10	5.30 ± 0.10	1.20 ± 0.10	1.55 + 0.01	330 ± 1.00	100 ± 1.00	13.00 ± 0.20
	(inch)	0.248 ± 0.004	0.209 ± 0.004	0.047 ± 0.004	0.061 + 0.0004	12.992 ± 0.039	3.937 ± 0.039	0.512 ± 0.008

PDFN5x6-8L	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	5.50 ± 0.10	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.25 ± 0.03	12.00 + 0.30 - 0.10	17.80 ± 0.30
	(inch)	0.069 ± 0.004	0.217 ± 0.004	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.010 ± 0.001	0.472 + 0.012 - 0.004	0.701 ± 0.012

## Marking Code

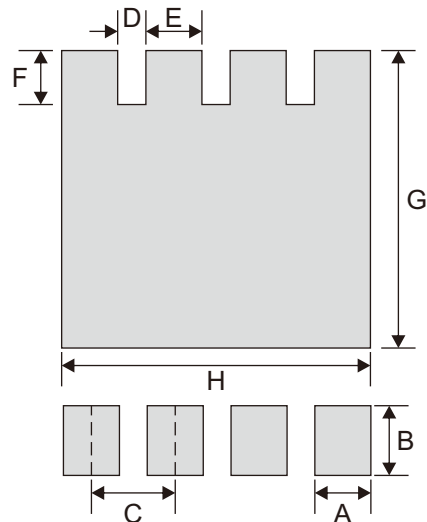
Part Number	Marking Code
ACMS05P06H8-HF	500P06



XXX = Control code

## Suggested P.C.B. PAD Layout

SIZE	PDFN5x6-8L	
	(mm)	(inch)
A	0.80	0.031
B	1.00	0.039
C	1.27	0.050
D	0.47	0.019
E	0.80	0.031
F	0.85	0.033
G	4.50	0.177
H	4.60	0.181



## Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
PDFN5x6-8L	5,000	13