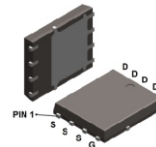


ACMS36P10H8-HF

P-Channel

RoHS Device

Halogen Free



Features

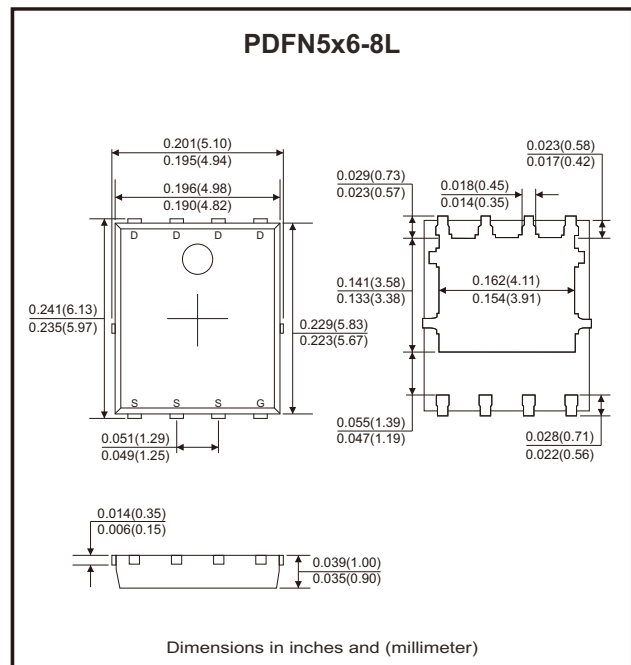
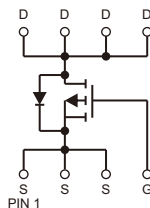
- Low $R_{DS(ON)}$.
- Low gate charge.
- Fast switching characteristic.
- AEC-Q101 Qualified.

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

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



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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-100	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current ($V_{GS}=-10\text{V}$, $T_c=25^\circ\text{C}$) (Note 1)	I_D	-36	A
Continuous drain current ($V_{GS}=-10\text{V}$, $T_c=100^\circ\text{C}$) (Note 1)	I_D	-23	
Continuous drain current ($V_{GS}=-10\text{V}$, $T_A=25^\circ\text{C}$) (Note 2)	I_D	-7	
Continuous drain current ($V_{GS}=-10\text{V}$, $T_A=75^\circ\text{C}$) (Note 2)	I_D	-5.6	
Pulsed drain current (Note 3)	I_{DM}	-144	A
Single pulse avalanche energy ($L=0.5\text{mH}$)	E_{AS}	156	mJ
Power dissipation ($T_c=25^\circ\text{C}$) (Note 1)	P_D	78	W
Power dissipation ($T_c=100^\circ\text{C}$) (Note 1)	P_D	31	
Power dissipation ($T_A=25^\circ\text{C}$) (Note 2)	P_D	3	
Power dissipation ($T_A=70^\circ\text{C}$) (Note 2)	P_D	1.9	
Thermal resistance junction to case	$R_{\theta JC}$	1.6	$^\circ\text{C/W}$
Thermal resistance junction to air (Note 2)	$R_{\theta JA}$	42	$^\circ\text{C/W}$
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 $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{DSS}	V _{GS} = 0V, I _D = -250μA	-100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -80V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics						
Static drain-source on-resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -7A			30	mΩ
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-2		-4	V
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -50V, f = 1MHz		4660		pF
Output capacitance	C _{oss}			260		
Reverse transfer capacitance	C _{rss}			160		
Switching Characteristics (Note 4, 5)						
Turn-on delay time	t _{d(on)}	V _{DD} = -50V, V _{GS} = -10V, R _G = 6Ω, I _D = -1A		28		ns
Turn-on rise time	t _r			27		
Turn-off delay time	t _{d(off)}			154		
Turn-off fall time	t _f			50		
Total gate charge	Q _g	V _{DD} = -50V, I _D = -7A, V _{GS} = -10V		78		nC
Gate to source charge	Q _{gs}			21		
Gate to drain (miller) charge	Q _{gd}			21		
Source-Drain Diode Characteristics						
Diode forward voltage (Note 4)	V _{SD}	I _{SD} = -7A, V _{GS} = 0V			-1.2	V
Continuous body diode forward current (Note 1)	I _S	T _C = 25°C			-36	A
Reverse recovery time	t _{rr}	I _F = -7A, dI _F /dt = 100A/μs		35		ns
Reverse recovery charge	Q _{rr}			60		nC

Notes: 1. The power dissipation PD is based on $T_J(\text{MAX})=150^{\circ}\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for case where additional heatsinking is used.

2. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2 oz. copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The power dissipation PD is based on $R_{\theta JA}$ and the maximum allowed junction temperature of 150°C . The value in any given application depends on the user's specific board design.

3. Repetitive rating, pulse width limited by junction temperature $T_J(\text{MAX})=150^{\circ}\text{C}$. Ratings are based on low frequency and low duty cycles to keep initial $T_J=25^{\circ}\text{C}$.

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

5. Independent of operating temperature.

Rating and Characteristic Curves (ACMS36P10H8-HF)

Fig.1 - Typical Output Characteristics

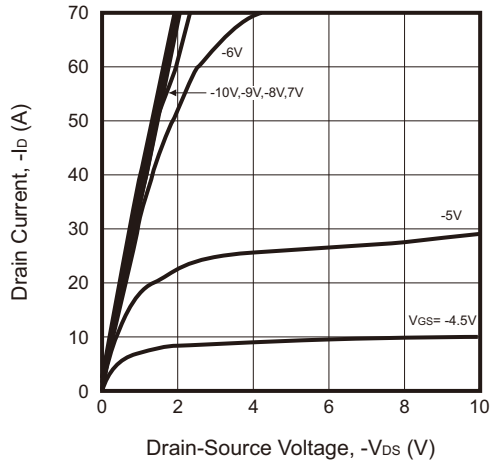


Fig.2 - On-Resistance vs. Drain Current and Gate Voltage

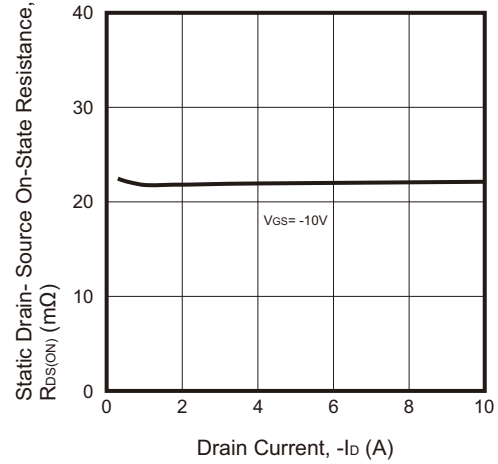


Fig.3 - On-Resistance vs. Gate-Source Voltage

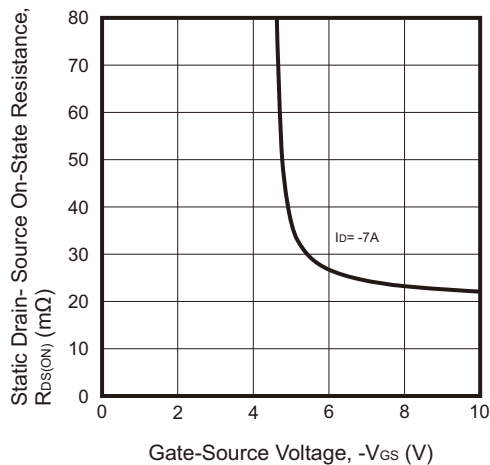


Fig.4 - Body-Diode Characteristics

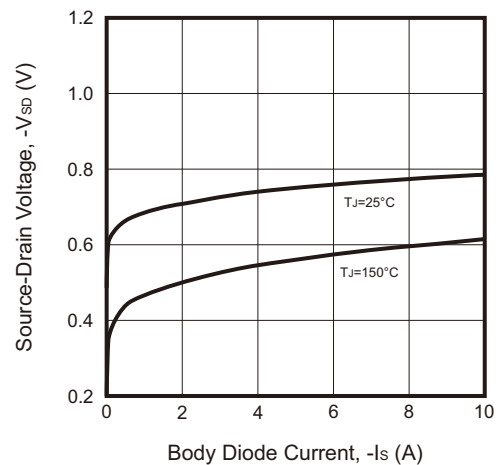


Fig.5 - On-Resistance vs. Junction Temperature

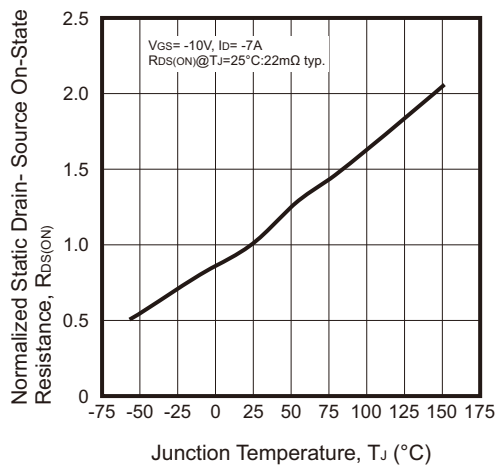
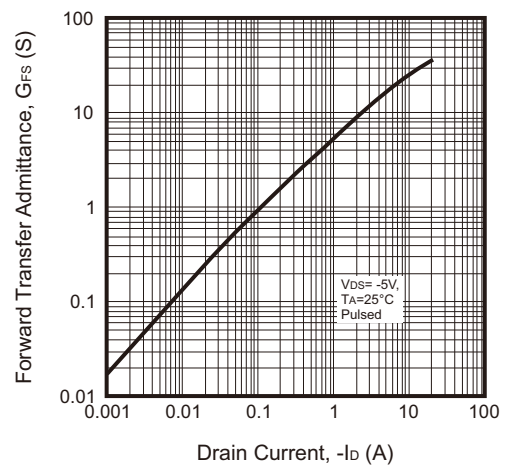


Fig.6 - Forward Transfer Admittance vs Drain Current



Rating and Characteristic Curves (ACMS36P10H8-HF)

Fig.7 - Capacitance Characteristics

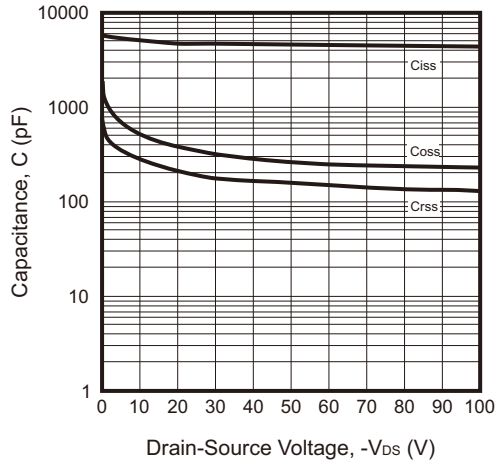


Fig.8 - Gate-Charge Characteristics

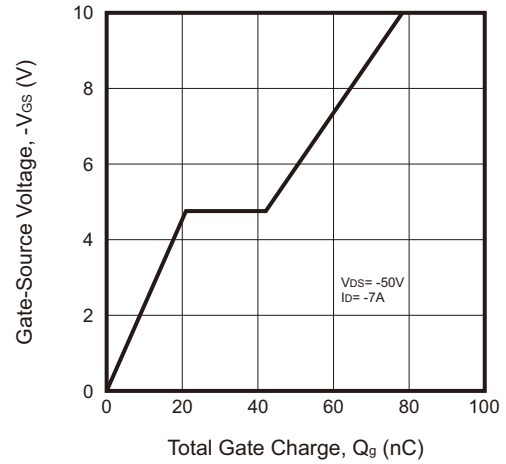


Fig.9 - Breakdown Voltage vs Junction Temperature

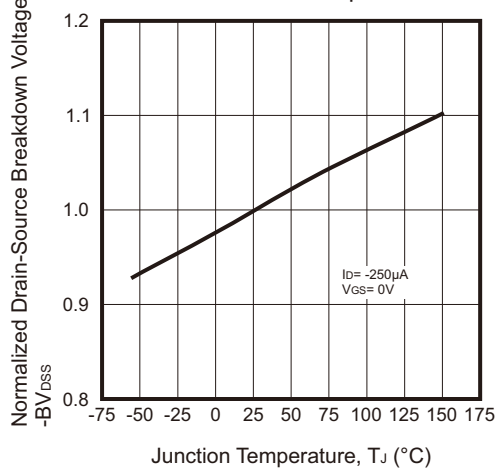


Fig.10 - $V_{GS(th)}$ vs Junction Temperature

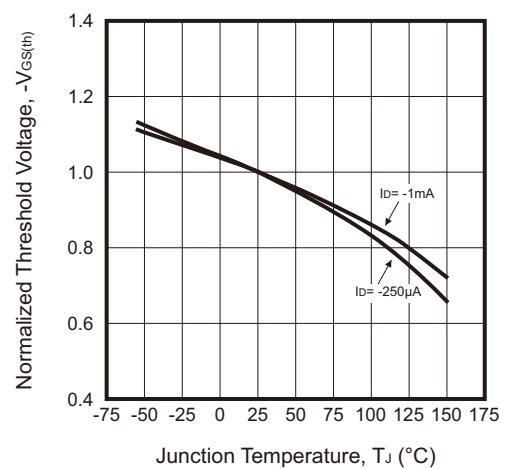


Fig.11 - Maximum Drain Current vs Junction Temperature

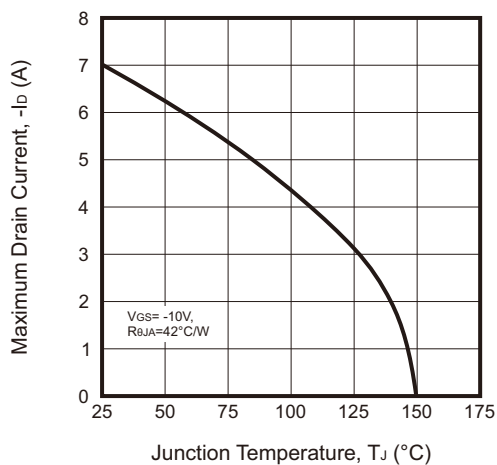
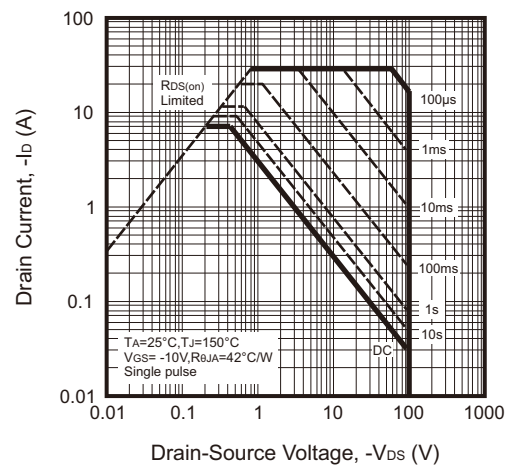
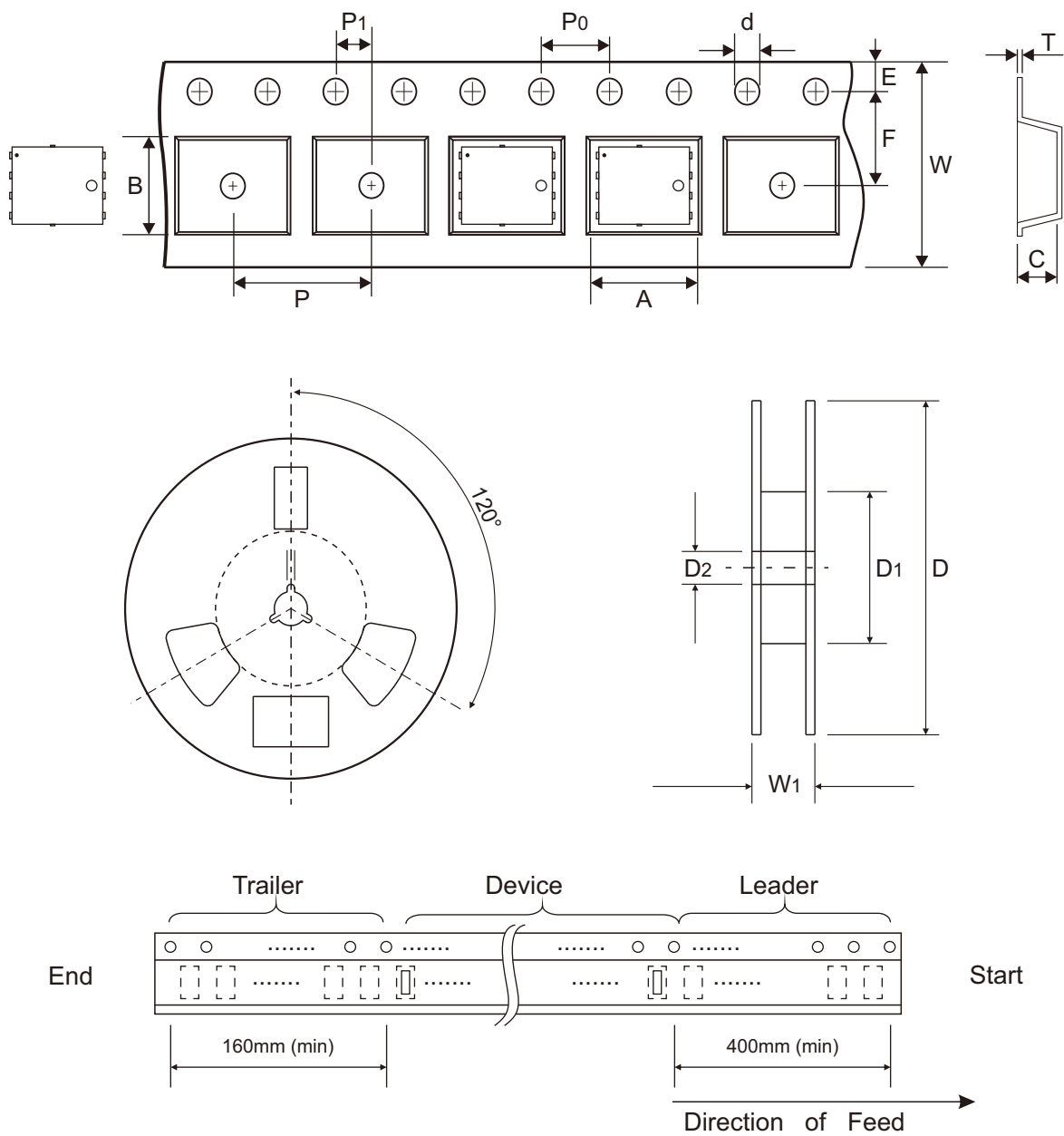


Fig.12 - Safe Operating Area



Reel Taping Specification

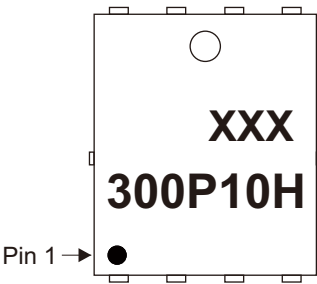


PDFN5x6 -8L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	6.30 ± 0.10	5.30 ± 0.10	1.20 ± 0.10	1.55 ± 0.01	330 ± 1.00	100 ± 1.00	13.00 ± 0.20
	(inch)	0.248 ± 0.004	0.209 ± 0.004	0.047 ± 0.004	0.061 ± 0.0004	12.992 ± 0.039	3.937 ± 0.039	0.512 ± 0.008

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

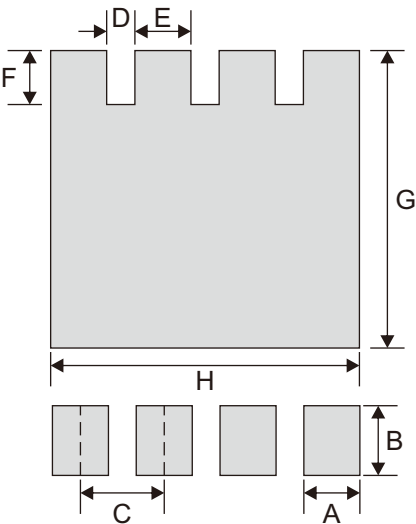
Part Number	Marking Code
ACMS36P10H8-HF	300P10H



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