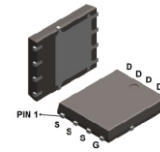


ACMS71P03H8-HF

P-Channel

RoHS Device

Halogen Free



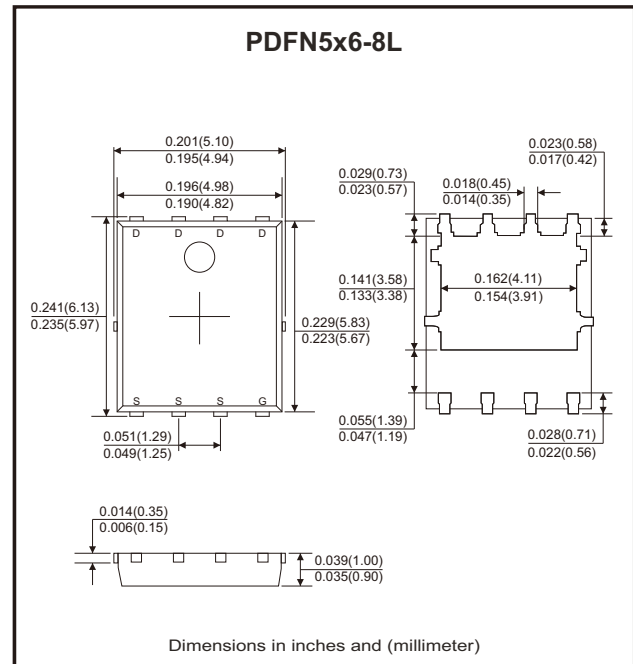
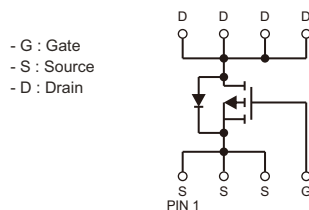
Features

- Super low gate charge.
- Excellent C_{dv}/dt effect decline.
- Advanced high cell density trench technology.
- AEC-Q101 Qualified.

Mechanical data

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

Circuit Diagram



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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-30	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current ($T_c=25^\circ\text{C}$)	I_D	-71	A
Continuous drain current ($T_c=100^\circ\text{C}$)	I_D	-45	
Pulsed drain current ($t_p=10\mu\text{s}$, $T_c=25^\circ\text{C}$)	I_{DM}	-284	A
Single pulse avalanche energy (Note 3)	E_{AS}	82	mJ
Power dissipation ($T_c=25^\circ\text{C}$)	P_D	52	W
Operating junction temperature range	T_J	-55 to +150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Thermal resistance junction to case	$R_{\theta JC}$		2.1	2.4	$^\circ\text{C}/\text{W}$
Thermal resistance junction to air (Note 1)	$R_{\theta JA}$		26	45	$^\circ\text{C}/\text{W}$

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	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -24V, V _{GS} = 0V, T _C = 25°C			-1	μA
		V _{DS} = -24V, V _{GS} = 0V, T _C = 55°C			-5	
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics						
Drain-source on-resistance (Note 2)	R _{DS(on)}	V _{GS} = -10V, I _D = -20A		5.4	6	mΩ
		V _{GS} = -4.5V, I _D = -15A		7.6	9	
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.5	-2.5	V
Gate resistance	R _G	V _{GS} = 0V, f = 1MHz		6.6		Ω
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		3890		pF
Output capacitance	C _{oss}			502		
Reverse transfer capacitance	C _{rss}			441		
Switching Characteristics						
Turn-on delay time (Note 4)	t _{d(on)}	V _{DD} = -15V, V _{GS} = -10V, R _G = 3Ω, I _D = -20A		11		ns
Turn-on rise time (Note 4)	t _r			14		
Turn-off delay time (Note 4)	t _{d(off)}			50		
Turn-off fall time (Note 4)	t _f			21		
Total gate charge	Q _g	V _{DD} = -15V, V _{GS} = -10V, I _D = -20A		81		nC
Gate to source charge	Q _{gs}			11		
Gate to drain (miller) charge	Q _{gd}			14		
Source-Drain Diode Characteristics						
Diode forward voltage (Note 2)	V _{SD}	I _{SD} = -1A, V _{GS} = 0V, T _J = 25°C		-0.7	-1.2	V
Reverse Recovery time	t _{rr}	I _{SD} = -14A, V _{GS} = 0V, dI/dt = 100A/μs		163		ns
Reverse recovery charge	Q _{rr}			256		nC

Notes: 1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.

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

3. The EAS data shows Max. rating. The test condition is $V_{DD}=-20\text{V}$, $V_{GS}=-10\text{V}$, $L=0.1\text{mH}$.

4. Guaranteed by design, not subject to production.

Typical Rating and Characteristic Curves (ACMS71P03H8-HF)

Fig.1 - Typical Output Characteristics

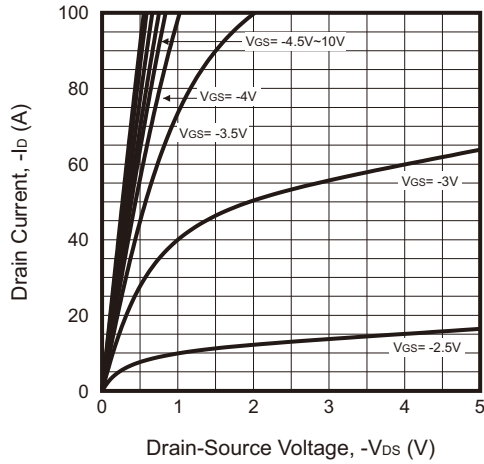


Fig.2 - On-Resistance vs. Drain Current and Gate Voltage

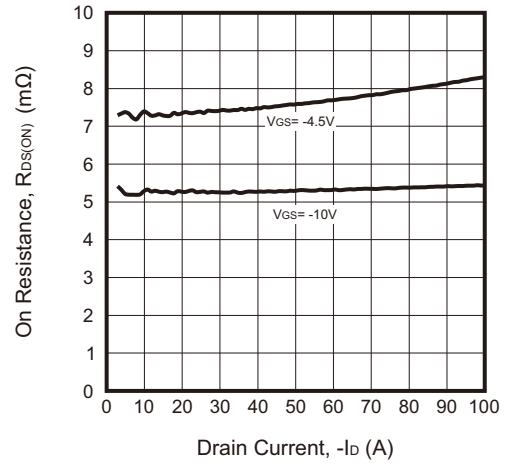


Fig.3 - On-Resistance vs. Gate-Source Voltage

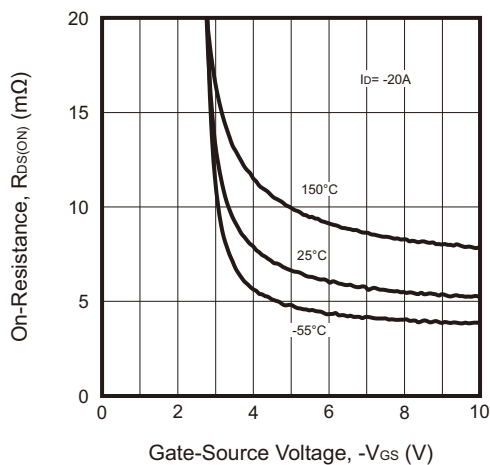


Fig.4 -Body-Diode Characteristics

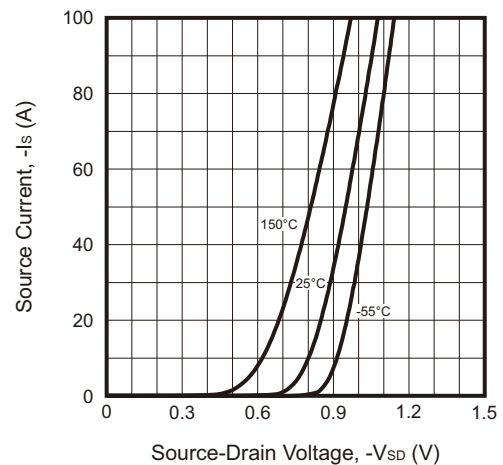


Fig.5 - Normalized On-Resistance vs. Junction Temperature

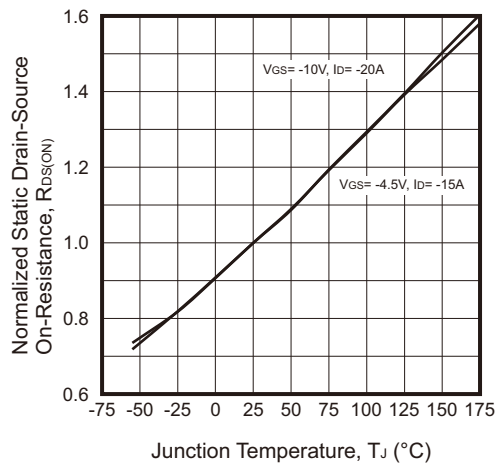
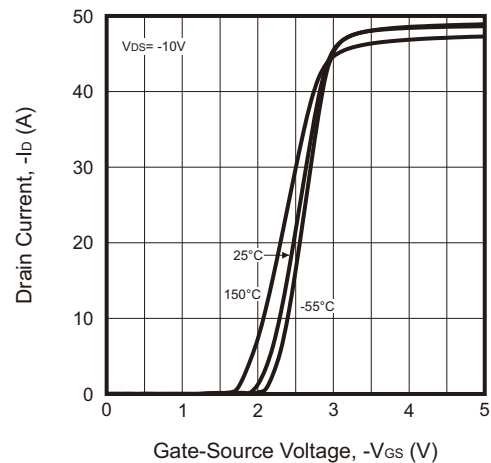


Fig.6 - Transfer Characteristics



Typical Rating and Characteristic Curves (ACMS71P03H8-HF)

Fig.7 - Capacitance Characteristics

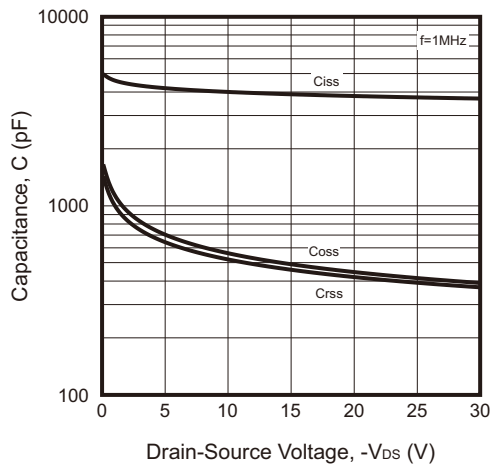


Fig.8 - Gate-Charge Characteristics

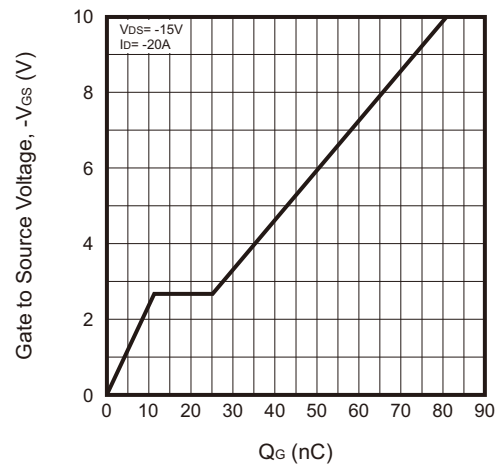


Fig.9 - Breakdown Voltage vs. Junction Temperature

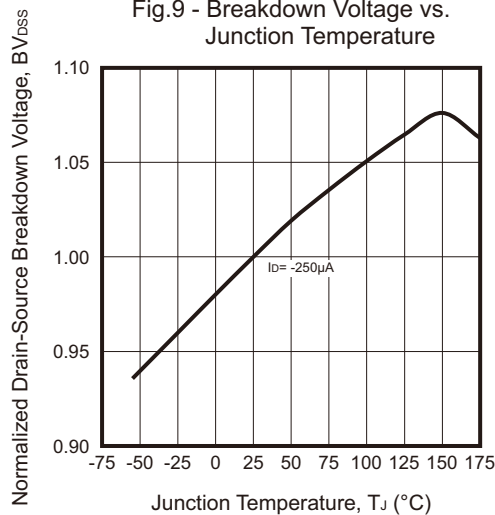


Fig.10 - Normalized $V_{GS(th)}$ vs. Junction Temperature

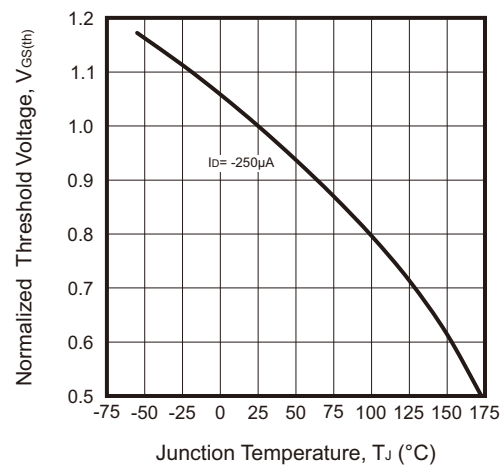
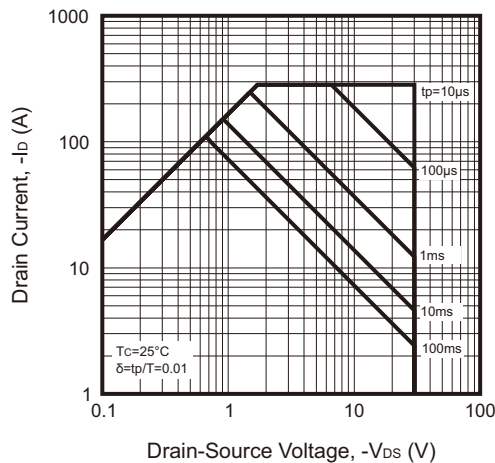
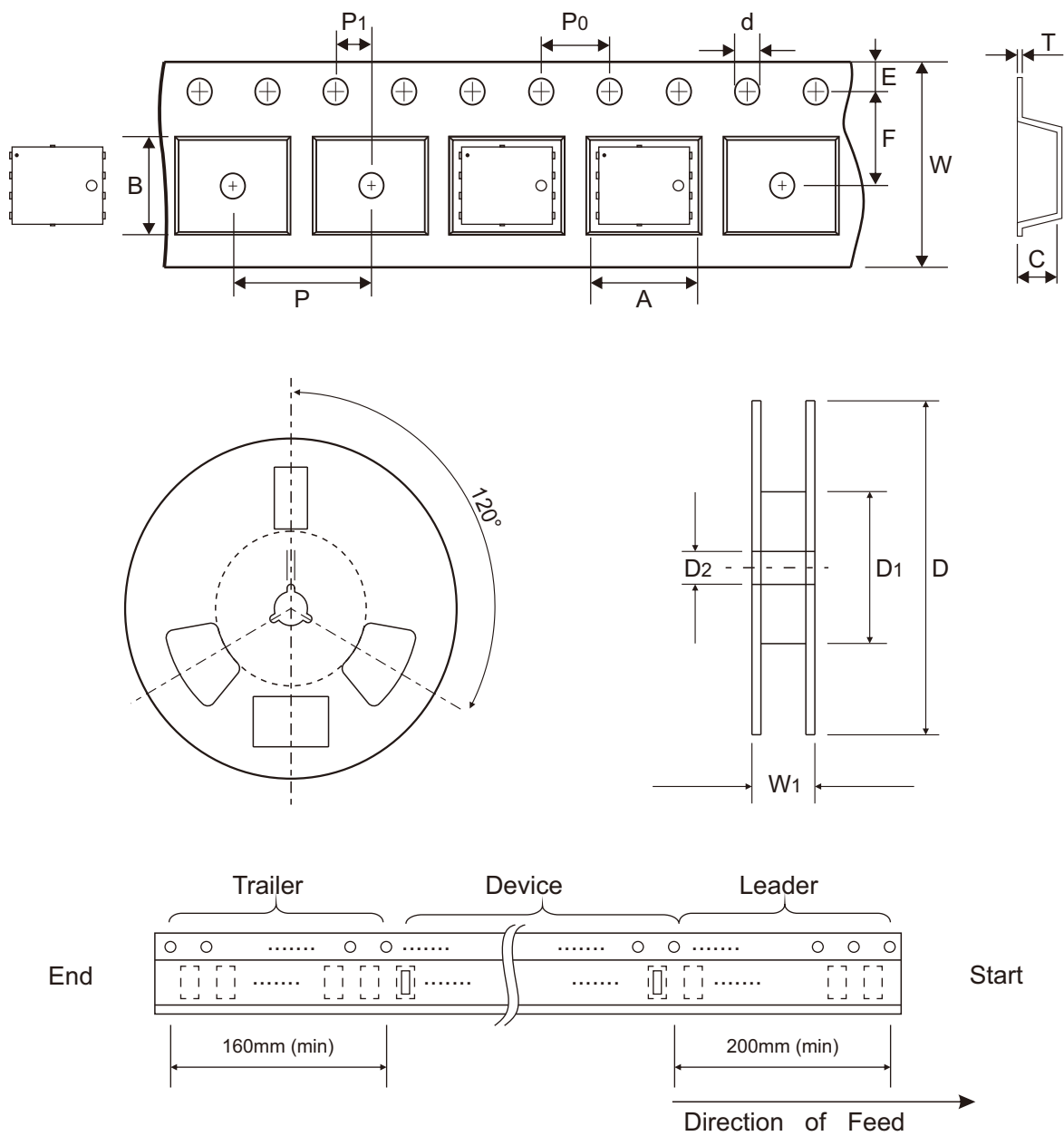


Fig.11 - Safe Operating Area



Reel Taping Specification

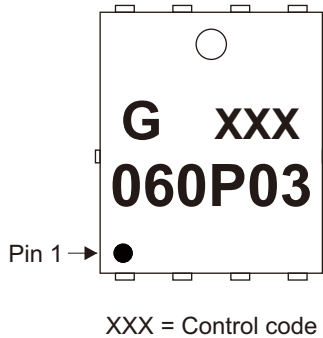


PDFN5x6-8L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	6.30 ± 0.10	5.30 ± 0.10	1.20 ± 0.10	1.55 + 0.01 - 0.00	330.00 ± 2.00	100.00 ± 2.00	13.00 ± 0.20
	(inch)	0.248 ± 0.004	0.209 ± 0.004	0.047 ± 0.004	0.061 + 0.0004 - 0.0000	12.992 ± 0.079	3.937 ± 0.079	0.512 ± 0.008

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	18.50 ± 2.00
	(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	0.728 ± 0.079

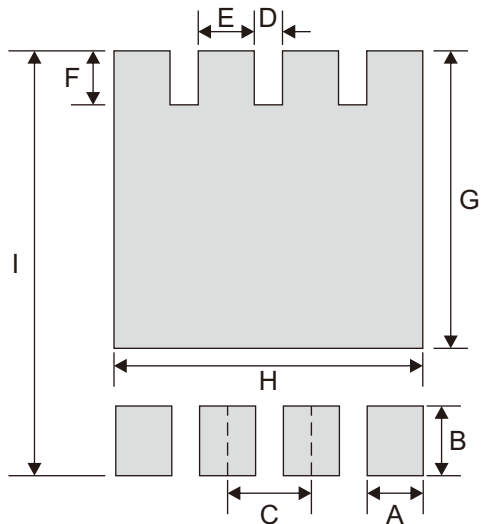
Marking Code

Part Number	Marking Code
ACMS71P03H8-HF	060P03



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	4.61	0.181
I	6.40	0.252



Standard Packaging

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