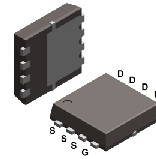


ACMS23P06V8-HF

P-Channel

RoHS Device

Halogen Free



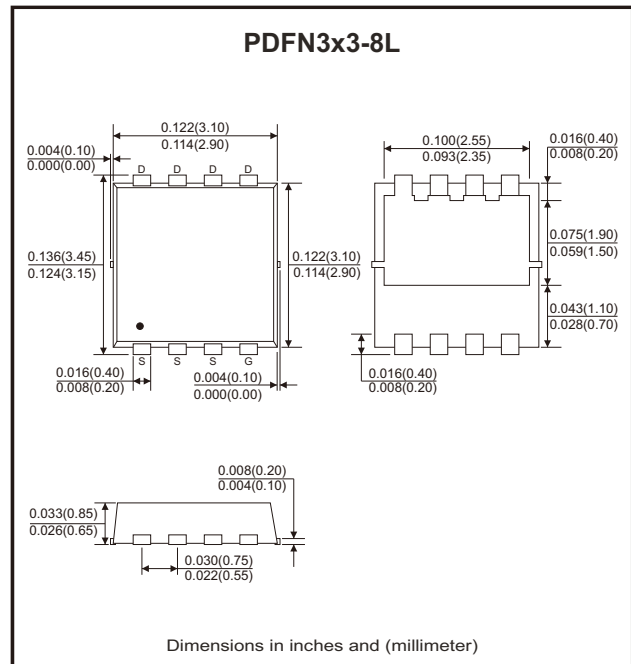
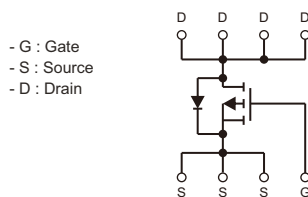
Features

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

Mechanical data

- Case: PDFN3x3-8L, molded plastic.
- 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}	-60	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current ($T_C=25^\circ\text{C}$)	I_D	-23	A
Continuous drain current ($T_C=100^\circ\text{C}$)	I_D	-15	
Continuous drain current ($T_A=25^\circ\text{C}$)	I_D	-7.7	
Continuous drain current ($T_A=70^\circ\text{C}$)	I_D	-6.2	
Pulsed drain current ($t_p=10\mu\text{s}$, $T_C=25^\circ\text{C}$)	I_{DM}	-160	A
Single pulse avalanche energy (Note 3)	E_{AS}	62.9	mJ
Power dissipation ($T_C=25^\circ\text{C}$)	P_D	25	W
Thermal resistance junction to case	$R_{\theta JC}$	5	$^\circ\text{C/W}$
Power dissipation ($T_A=25^\circ\text{C}$) (Note 1)	P_D	2.3	W
Thermal resistance junction to air (Note 1)	$R_{\theta JA}$	55	$^\circ\text{C/W}$
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	BV _{DSS}	V _{GS} = 0V, I _D = 250μA	-60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -48V, V _{GS} = 0V, T _C = 25°C			-1	μA
		V _{DS} = -48V, V _{GS} = 0V, T _C = 55°C			-5	μA
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 = -18A		22	25	mΩ
	R _{DS(on)}	V _{GS} = -4.5V, I _D = -12A		30	33	mΩ
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-2	-2.5	V
Gate resistance	R _G	V _{GS} = 0V, f = 1MHz		4.8		Ω
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		2957		pF
Output capacitance	C _{oss}			224		
Reverse transfer capacitance	C _{rss}			240		
Switching Characteristics						
Turn-on delay time (Note 4)	t _{d(on)}	V _{GS} = -10V, V _{DD} = -15V, I _D = -1A R _G = 3.3Ω		38		ns
Turn-on rise time (Note 4)	t _r			23.6		
Turn-off delay time (Note 4)	t _{d(off)}			100		
Turn-off fall time (Note 4)	t _f			6.8		
Total gate charge	Q _g	V _{GS} = -4.5V, V _{DD} = -12V, I _D = -12A		25		nC
Gate to source charge	Q _{gs}			10.9		
Gate to drain (miller) charge	Q _{gd}			9		
Source-Drain Diode Characteristics						
Diode forward voltage (Note 2)	V _{SD}	I _{SD} = -1A, V _{GS} = 0V		-0.7	-1.2	V
Reverse recovery time	t _{rr}	I _F = -5A, V _{GS} = 0V, di/dt = 100A/μs		44		ns
Reverse recovery charge	Q _{rr}			53.4		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 $\leq 300\mu s$, duty cycle $\leq 2\%$.

3. The EAS data shows max. rating. The test condition is $V_{DD}=-30V, V_{GS}=-10V, L=0.1mH$.

4. Guaranteed by design, not subject to production.

Typical Rating and Characteristic Curves (ACMS23P06V8-HF)

Fig.1 - Typical Output Characteristics

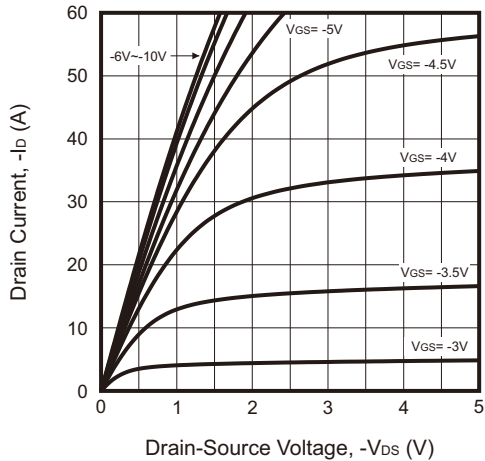


Fig.2 - On-Resistance vs. Drain Current and Gate Voltage

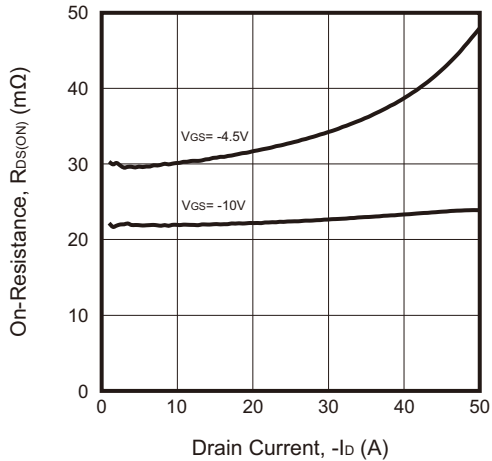


Fig.3 - On-Resistance vs. Gate-Source Voltage

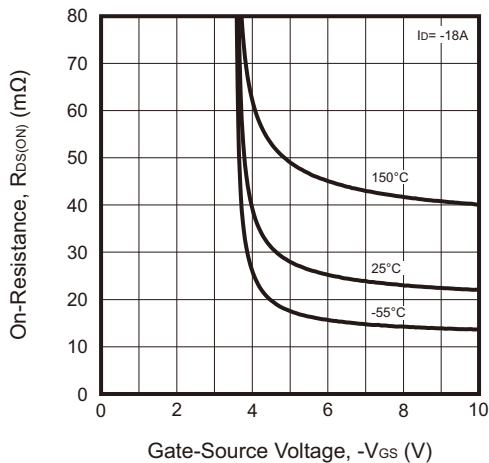


Fig.4 - Body-Diode Characteristics

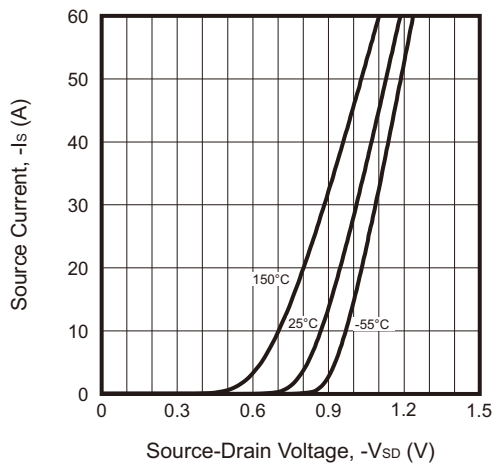


Fig.5 - Normalized On-Resistance vs. Junction Temperature

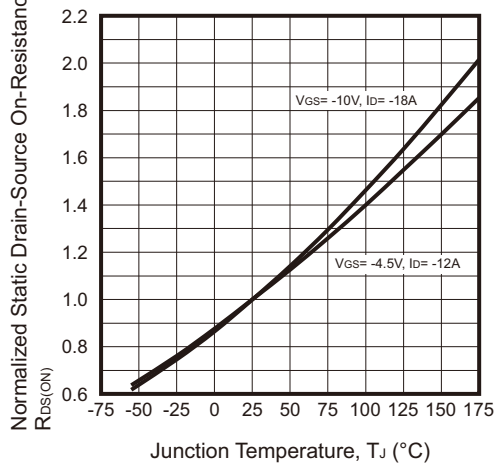
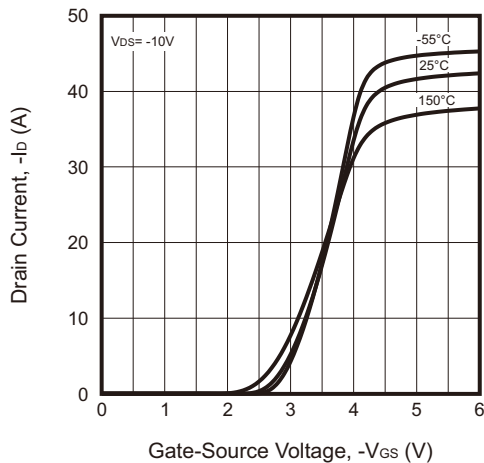


Fig.6 - Transfer Characteristics



Typical Rating and Characteristic Curves (ACMS23P06V8-HF)

Fig.7 - Capacitance Characteristics

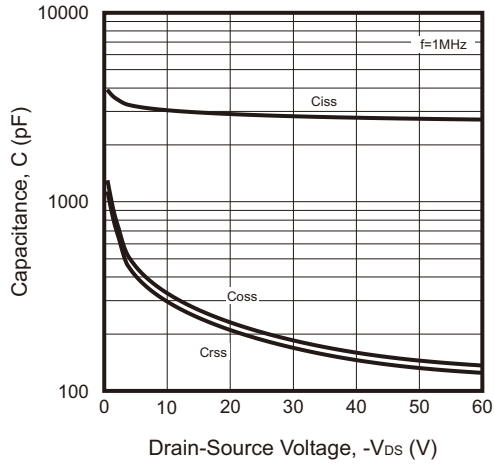


Fig.8 - Gate Charge Characteristics

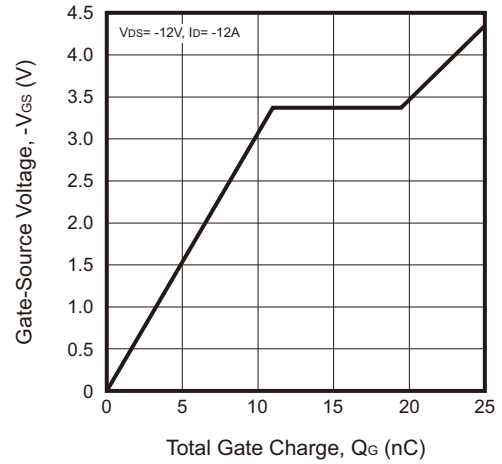


Fig.9 - Normalized Breakdown Voltage vs. Junction Temperature

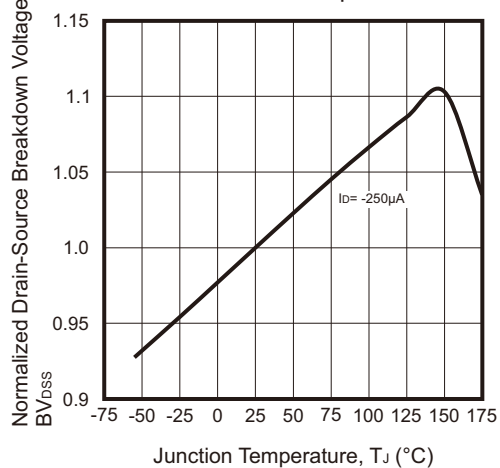


Fig.10 - Normalized $V_{GS(th)}$ vs. Junction Temperature

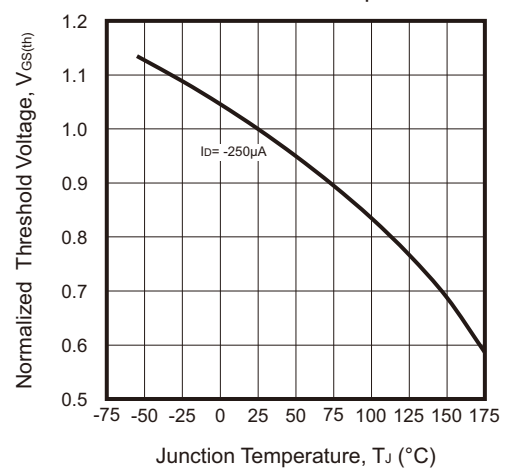
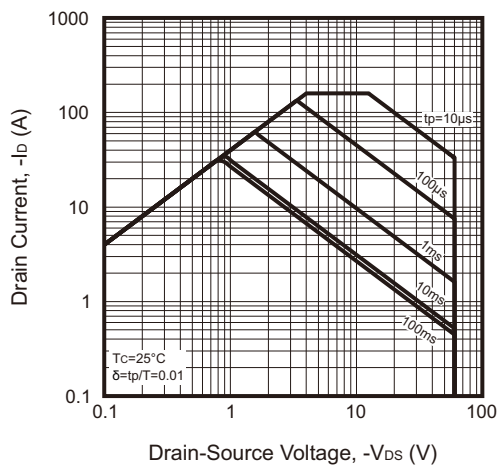
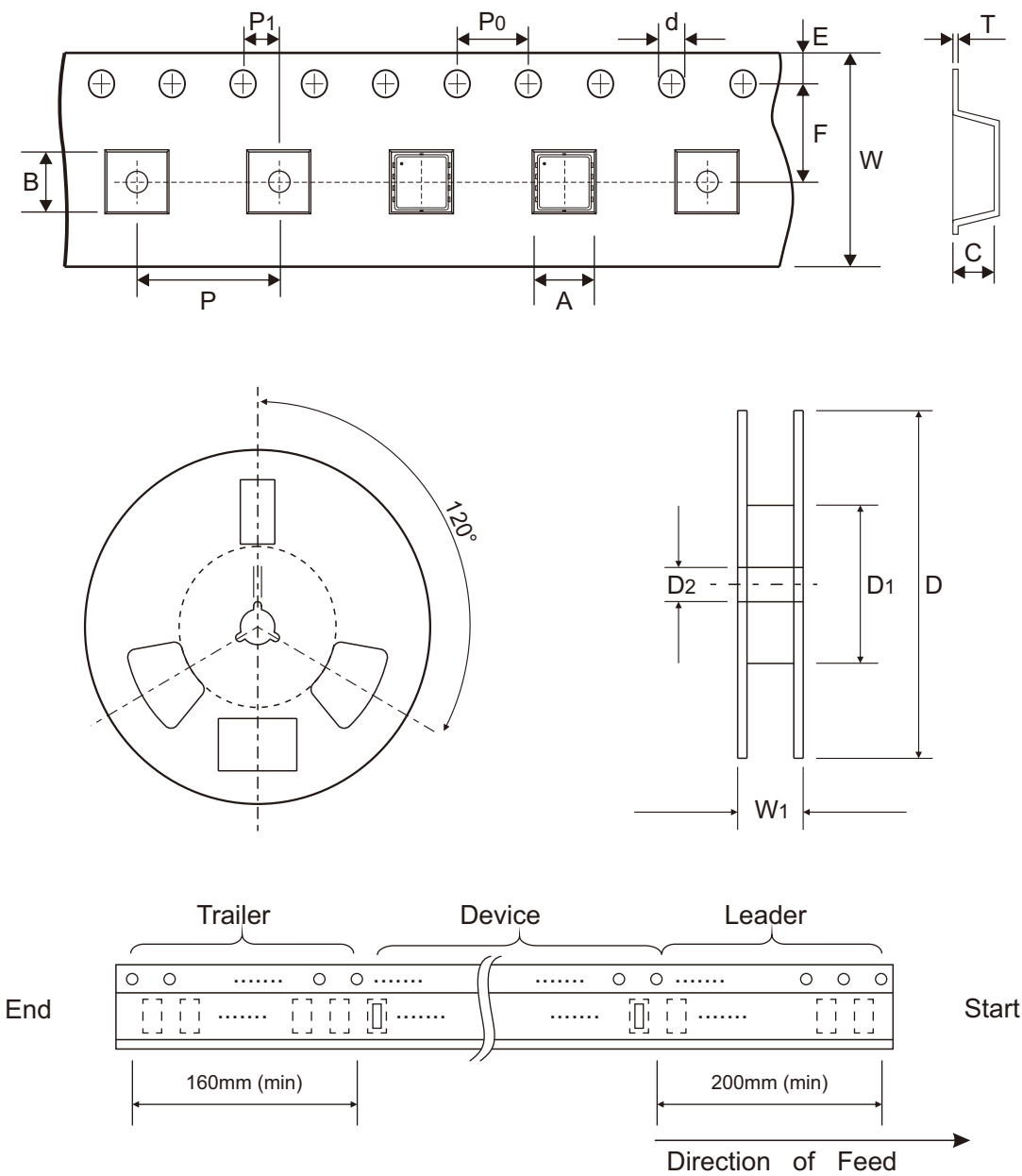


Fig.11 - Safe Operating Area



Reel Taping Specification

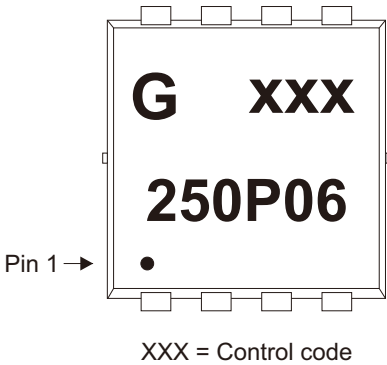


PDFN3x3 -8L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.60 ± 0.10	3.60 ± 0.10	1.20 ± 0.10	1.50 + 0.10 - 0.00	330.00 ± 1.00	100.00 ± 1.00	13.00 ± 0.20
	(inch)	0.142 ± 0.004	0.142 ± 0.004	0.047 ± 0.004	0.059 + 0.004 - 0.000	12.992 ± 0.039	3.937 ± 0.039	0.512 ± 0.008

PDFN3x3 -8L	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	5.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.25 ± 0.02	12.00 + 0.30 - 0.10	17.80 ± 0.30
	(inch)	0.069 ± 0.004	0.217 ± 0.002	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

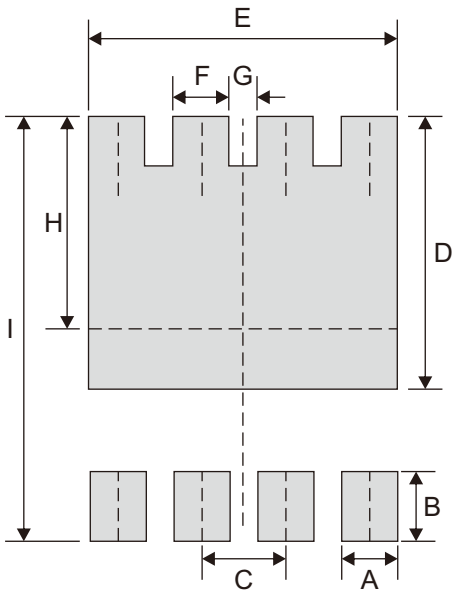
Marking Code

Part Number	Marking Code
ACMS23P06V8-HF	250P06



Suggested P.C.B. PAD Layout

SIZE	PDFN3x3-8L	
	(mm)	(inch)
A	0.42	0.017
B	0.70	0.028
C	0.65	0.026
D	2.25	0.089
E	2.37	0.093
F	0.42	0.017
G	0.23	0.009
H	1.85	0.073
I	3.70	0.146



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
PDFN3x3-8L	5,000	13