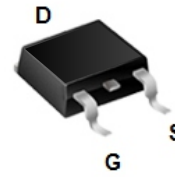


ACMS30N06D-HF

**N-Channel
RoHS Device
Halogen Free**

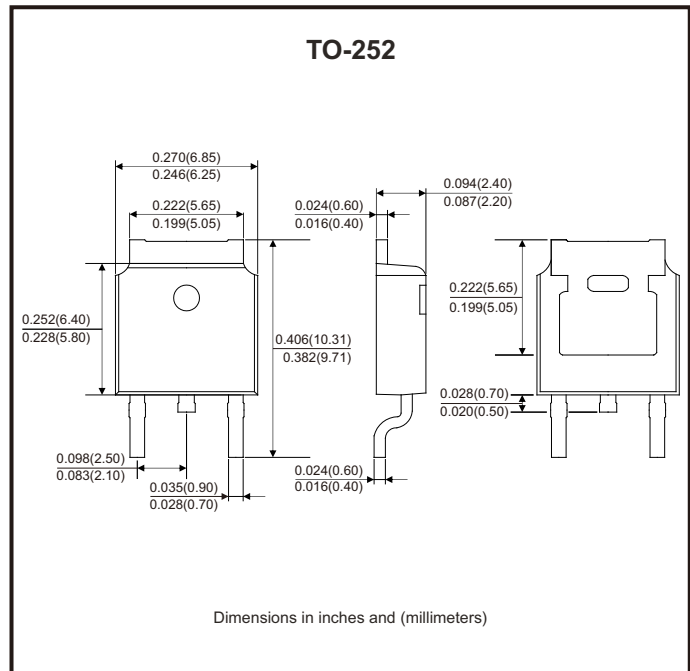


Features

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

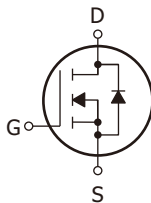
Mechanical data

- Case: TO-252, molded plastic.
- Molding compound: UL flammability classification rating 94V-0.
- Terminals: Matte tin-plated leads, solderability-per MIL-STD-202, method 208.



Circuit Diagram

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



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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DSS}	60	V
Gate-source voltage	V_{GSS}	±20	V
Continuous drain current (T _C =25°C) (Note 1)	I_D	30	A
Continuous drain current (T _C =100°C) (Note 1)	I_D	20	
Pulsed drain current (Note 2)	I_{DM}	120	A
Single pulse avalanche energy (Note 3)	E_{AS}	40	mJ
Power dissipation (T _C =25°C) (Note 4)	P_D	30	W
Thermal resistance junction to case (Note 1)	$R_{\theta JC}$	4.2	°C/W
Operating junction temperature range	T_J	-55 to +175	°C
Storage temperature range	T_{STG}	-55 to +175	°C

Electrical Characteristics (at T_A=25°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	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 48V, 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 (Note 2)	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		12	20	mΩ
	R _{DS(on)}	V _{GS} = 4.5V, I _D = 15A		16	24	mΩ
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.7	2.5	V
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		1880		pF
Output capacitance	C _{oss}			170		
Reverse transfer capacitance	C _{rss}			140		
Switching Characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V R _G = 3Ω, I _D = 15A		7.4		ns
Turn-on rise time	t _r			5.1		
Turn-off delay time	t _{d(off)}			28.3		
Turn-off fall time	t _f			5.5		
Total gate charge	Q _g	V _{DD} = 48V, V _{GS} = 10V, I _D = 15A		36		nC
Gate to source charge	Q _{gs}			4.7		
Gate to drain (miller) charge	Q _{gd}			9		
Source-Drain Diode Characteristics						
Diode forward voltage (Note 2)	V _{SD}	I _{SD} = 5A, V _{GS} = 0V, T _J = 25°C		0.79	1.2	V
Drain continuous forward current (Note 1, 4)	I _S				30	A
Reverse recovery time	t _{rr}	V _R = 50V, I _F = 15A, di/dt = 100A/μs		26		ns
Reverse recovery charge	Q _{rr}			18		nC

- Notes: 1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
 2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%.
 3. The EAS data shows Max. rating. The test condition is V_{DD}=25V, V_{GS}=10V, L=0.1mH.
 4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

Rating and Characteristic Curves (ACMS30N06D-HF)

Fig.1 - Output Characteristics

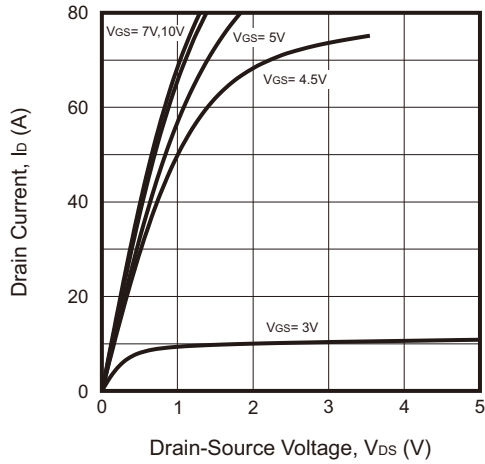


Fig.2 - On-Resistance vs. Drain Current and Gate Voltage

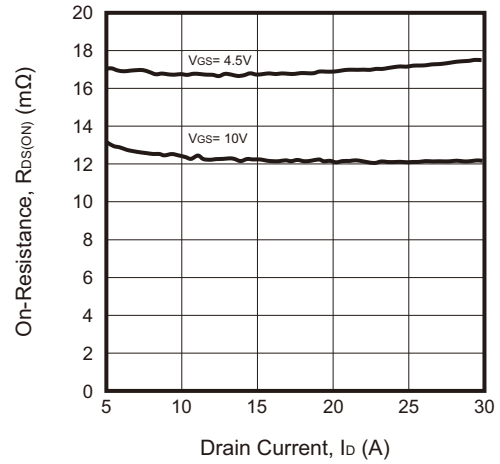


Fig.3 - On-Resistance vs. Gate-Source Voltage

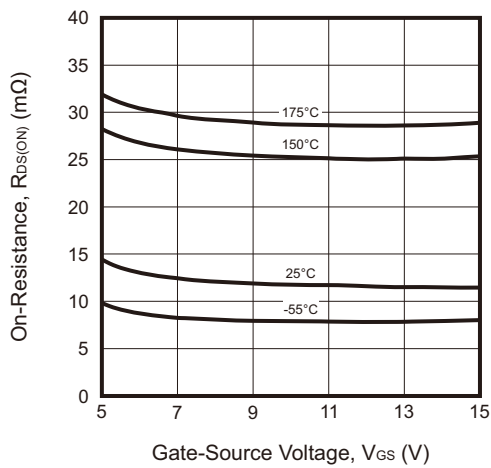


Fig.4 - Body-Diode Characteristics

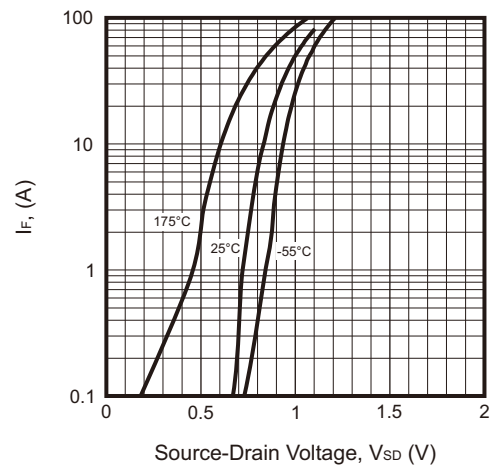


Fig.5 - On-Resistance vs. Junction Temperature

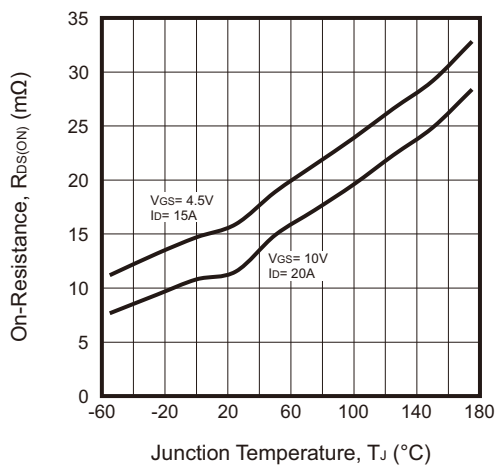
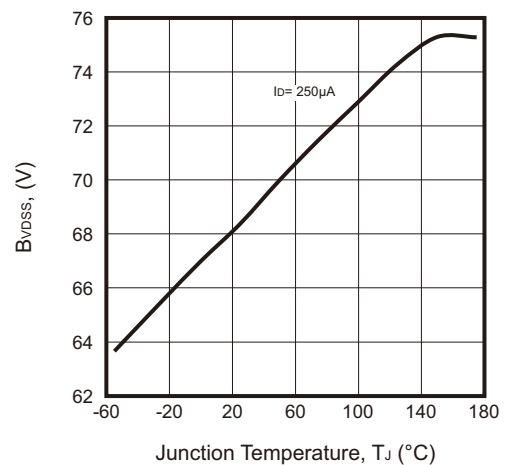


Fig.6 - Drain Source vs. Junction Temperature



Rating and Characteristic Curves (ACMS30N06D-HF)

Fig.7 - Capacitance Characteristics

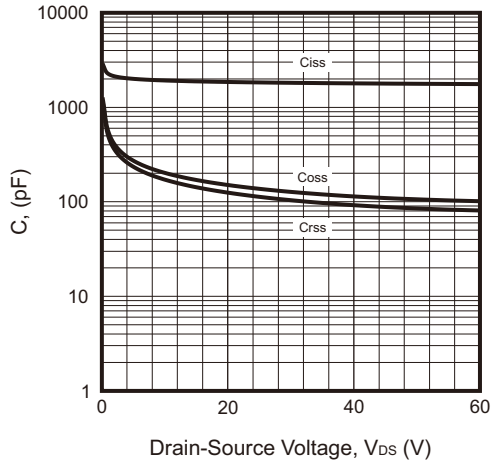


Fig.8 - Gate Voltage vs. Junction Temperature

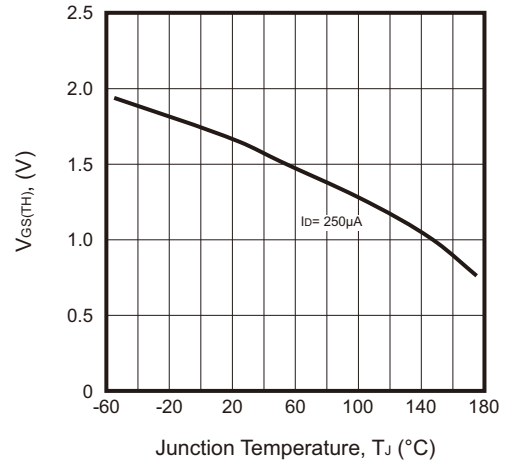


Fig.9 - Transfer Characteristics

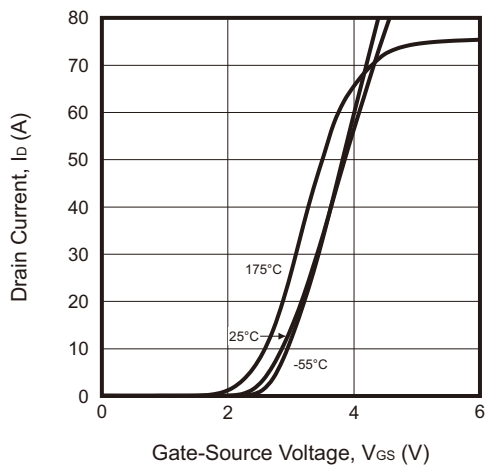
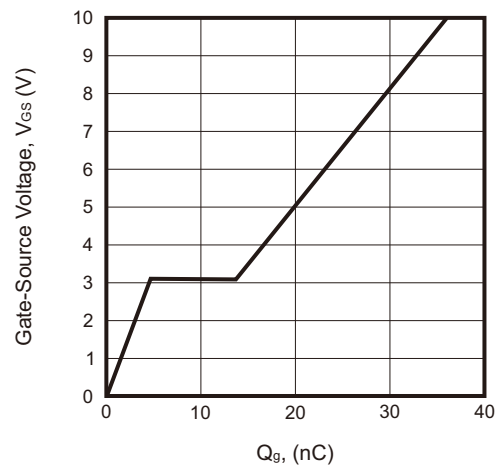
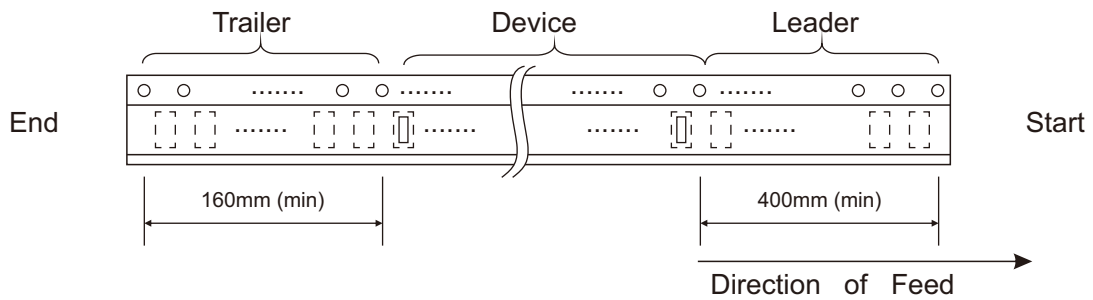
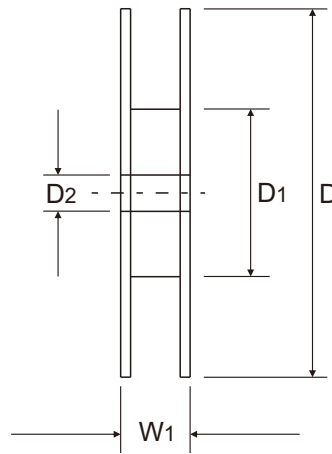
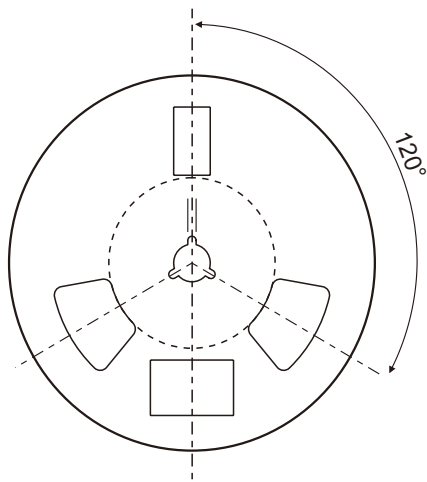
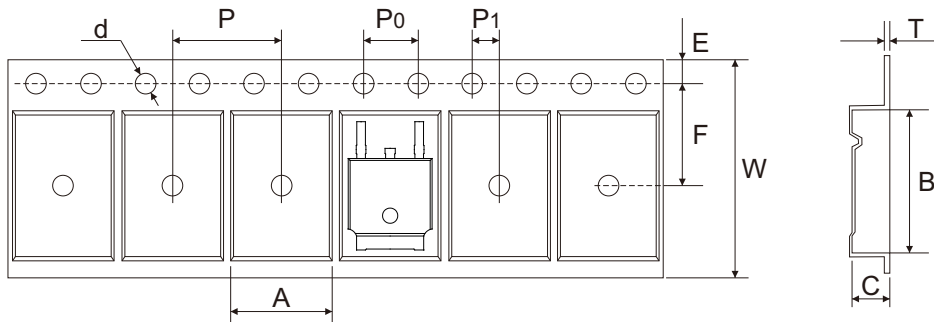


Fig.10 - Gate-Charge Characteristics



Reel Taping Specification

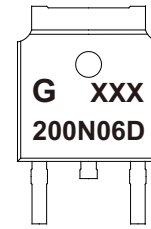


	SYMBOL	A	B	C	d	D	D1	D2
TO-252	(mm)	6.90 ± 0.10	10.50 ± 0.10	2.70 ± 0.10	1.50 + 0.25	330 ± 1.00	100 ± 1.00	13.00 ± 0.20
	(inch)	0.272 ± 0.004	0.413 ± 0.004	0.106 ± 0.004	0.059 + 0.010	12.992 ± 0.039	3.937 ± 0.039	0.512 ± 0.008

	SYMBOL	E	F	P	P0	P1	T	W	W1
TO-252	(mm)	1.75 ± 0.10	7.50 ± 0.10	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	0.30 ± 0.10	16.00 + 0.30 - 0.20	21.00 ± 0.30
	(inch)	0.069 ± 0.004	0.295 ± 0.004	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.012 ± 0.004	0.630 + 0.012 - 0.008	0.827 ± 0.012

Marking Code

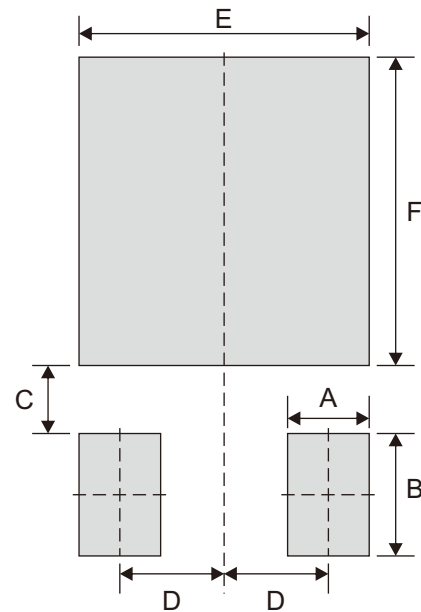
Part Number	Marking Code
ACMS30N06D-HF	200N06D



XXX = Control code

Suggested P.C.B. PAD Layout

SIZE	TO-252	
	(mm)	(inch)
A	1.80	0.071
B	2.70	0.106
C	1.50	0.059
D	2.30	0.091
E	6.40	0.252
F	6.80	0.268



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
TO-252	2,500	13