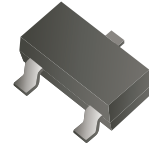


CMS02N06KT-HF

**N-Channel
RoHS Device
Halogen Free**



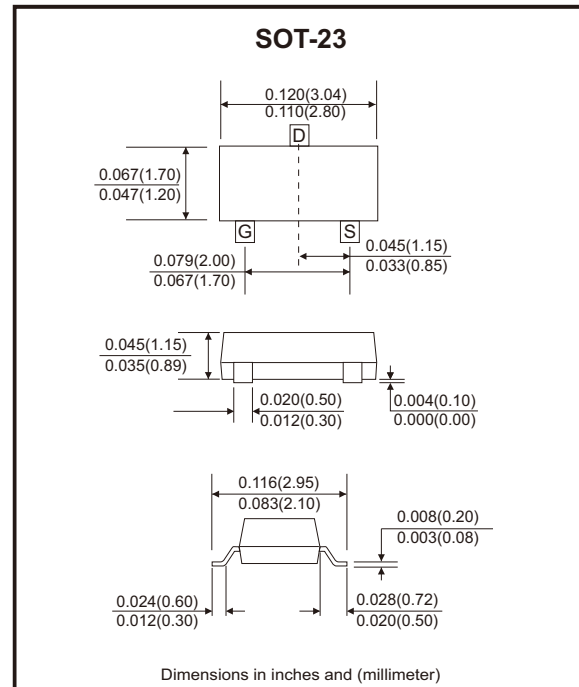
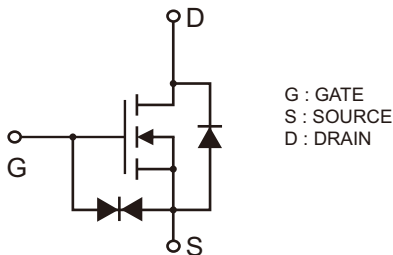
Features

- Simple drive requirement.
- Small package outline.
- ESD protected gate.

Mechanical data

- Case: SOT-23, molded plastic.
- Mounting position: Any.

Circuit Diagram



Maximum Ratings (at TA=25°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 (Note 3)	I _D	T _A = 25°C, V _{GS} = 10V	2.2
		T _A = 70°C, V _{GS} = 10V	1.8
Pulsed drain current (Note 1 & 2)	I _{DM}	10	A
Maximum power dissipation (Note 3)	P _D	T _A = 25°C	1.38
		T _A = 70°C	0.88
Maximum thermal resistance from junction to ambient (Note 3)	R _{θJA}	90	°C/W
Maximum thermal resistance from junction to case (Note 3)	R _{θJC}	62	
Operating junction temperature range	T _J	-55 to +150	°C
Storage temperature range	T _{STG}	-55 to +150	°C

- Notes: 1. Pulse width limited by maximum junction temperature.
 2. Pulse width ≤ 300 μs, duty cycle ≤ 2%.
 3. Surface mounted on 1 in² copper pad of FR-4 board; 270°C/W when mounted on minimum copper pad.

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Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	60			V
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0		2.5	V
Gate-body leakage current	I _{GSS}	V _{GS} =±16V, V _{DS} =0V			±10	μA
Zero gate voltage drain current	I _{DSS}	V _{DS} =48V, V _{GS} =0V			1	μA
		V _{DS} =48V, V _{GS} =0V (T _J =85°C)			10	
Drain-source on-state resistance (Note 1)	R _{DS(on)}	V _{GS} =10V, I _D =2.2A		180	235	mΩ
		V _{GS} =4.5V, I _D =1.3A		202	280	
Forward transconductance (Note 1)	G _{FS}	V _{DS} =10V, I _D =1A		1.4		S
Dynamic						
Input capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz		121		pF
Output capacitance	C _{oss}			17		
Reverse transfer capacitance	C _{rss}			12		
Turn-on delay time	t _{d(ON)}	V _{DS} =30V, I _D =2.2A, V _{GS} =10V, R _G =1Ω		3.2		ns
Rise time	t _r			16.6		
Turn-off delay time	t _{d(OFF)}			10.2		
Fall time	t _f			4.8		
Total gate charge	Q _g	V _{DS} =48V, I _D =2.2A, V _{GS} =10V		4.1		nC
Gate-source charge	Q _{gs}			0.9		
Gate-drain charge	Q _{gd}			0.5		
Source-Drain Diode						
Diode forward voltage (Note 1)	V _{SD}	I _S =0.45A, V _{GS} =0V		0.78	1	V
Continuous source-drain diode current (Note 1)	I _S				2.2	A
Pulse diode forward current (Note 1)	I _{SM}				10	

Note: 1. Pulse Test: Pulse width ≤ 300μs, duty cycle ≤ 2%.

Typical Rating and Characteristic Curves (CMS02N06KT-HF)

Fig.1 - Typical Output Characteristics

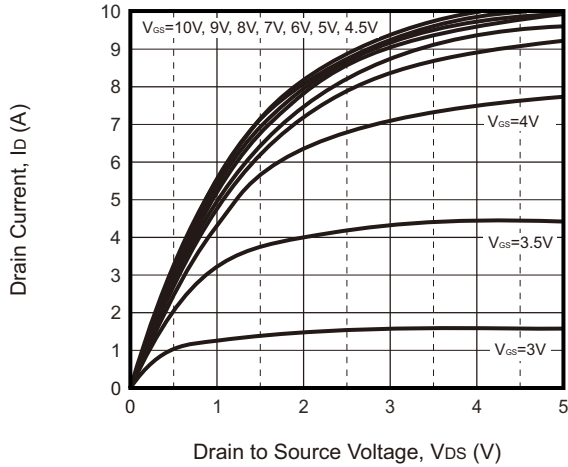


Fig.2 - Static Drain-Source On-State Resistance vs. Drain Current

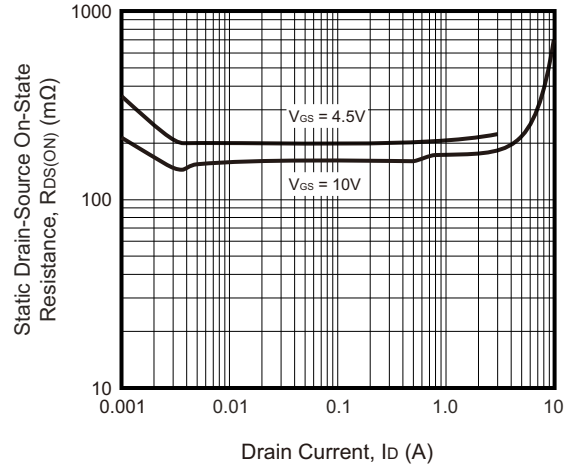


Fig.3 - Static Drain-Source On-State Resistance vs. Gate-Source Voltage

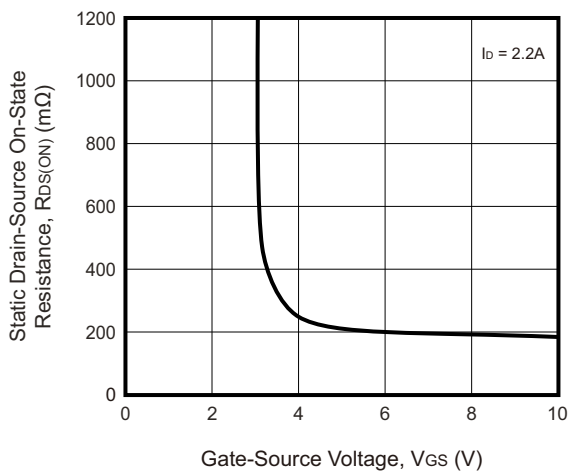


Fig.4 - Capacitance vs. Drain-Source Voltage

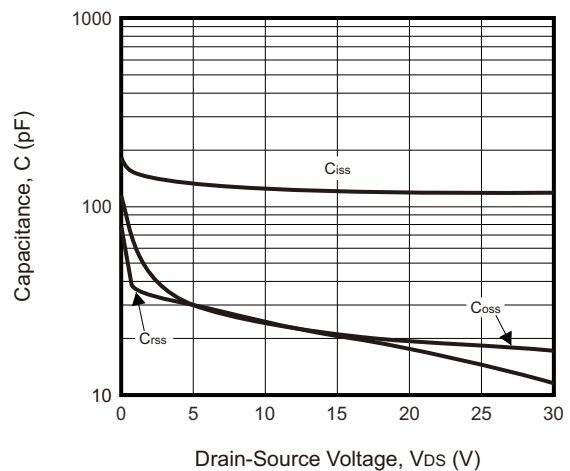


Fig.5 - Forward Transfer Admittance vs. Drain Current

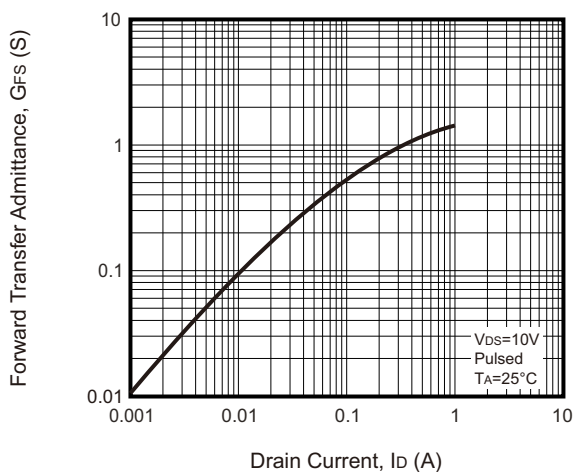
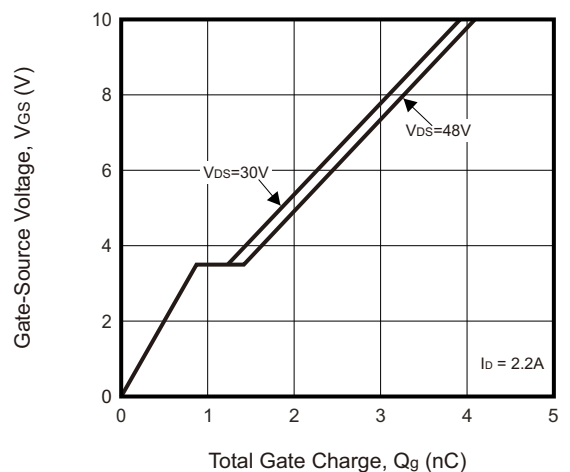


Fig.6 - Gate Charge Characteristics

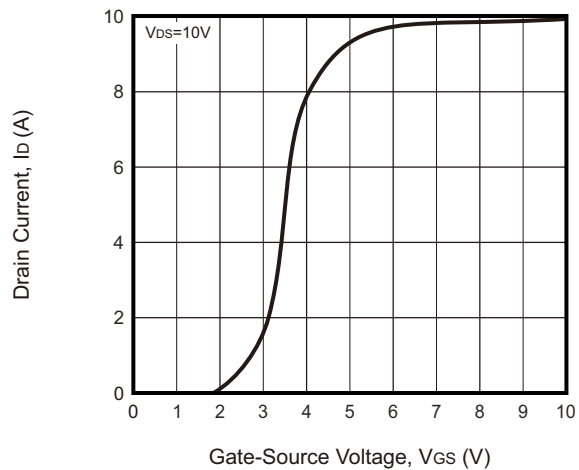


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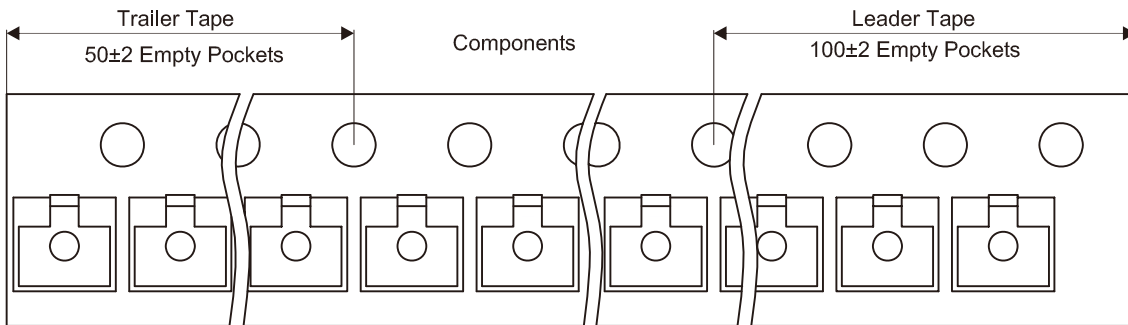
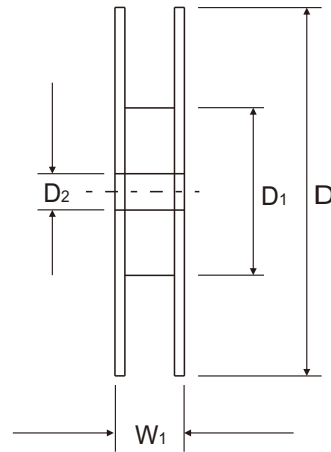
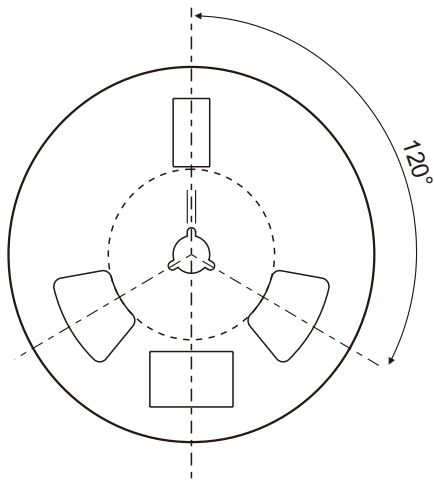
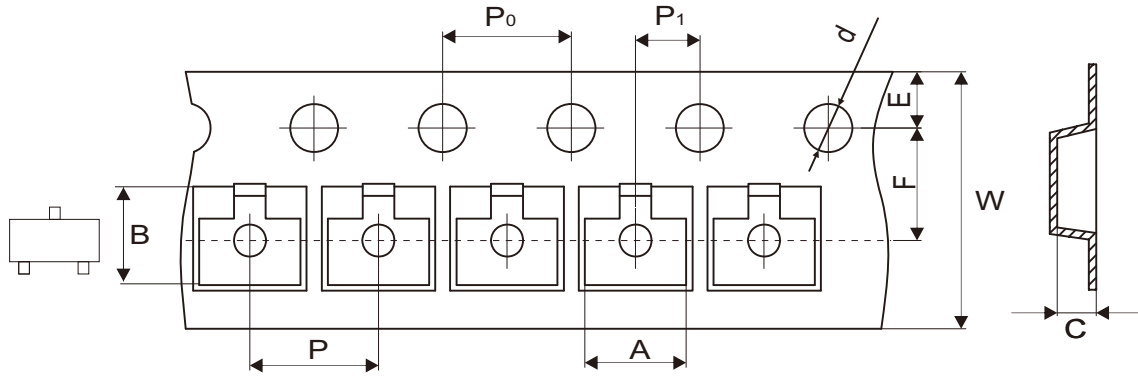
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Typical Rating and Characteristic Curves (CMS02N06KT-HF)

Fig.7 - Typical Transfer Characteristics



Reel Taping Specification



SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.17 ± 0.10	3.23 ± 0.10	1.37 ± 0.10	1.50 + 0.10	178.00 ± 1.00	55.00 ± 1.00	13.00 ± 0.50
	(inch)	0.125 ± 0.004	0.127 ± 0.004	0.054 ± 0.004	0.059 + 0.004	7.008 ± 0.039	2.165 ± 0.039	0.512 ± 0.020

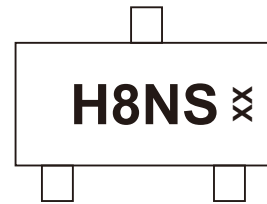
SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 / - 0.10	12.00 ± 0.50
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 / - 0.004	0.472 ± 0.020

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REV:B

Marking Code

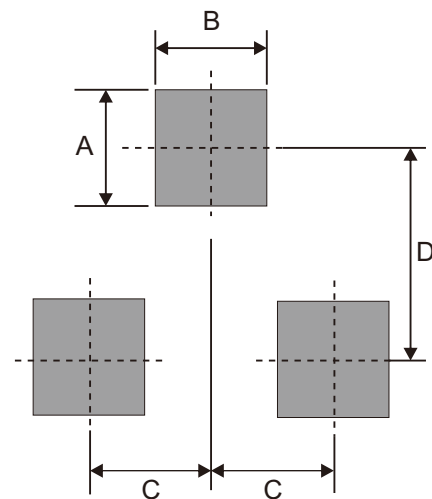
Part Number	Marking Code
CMS02N06KT-HF	H8NS



XX = Control code

Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7