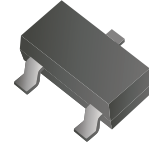


CMS02N06KT-HF

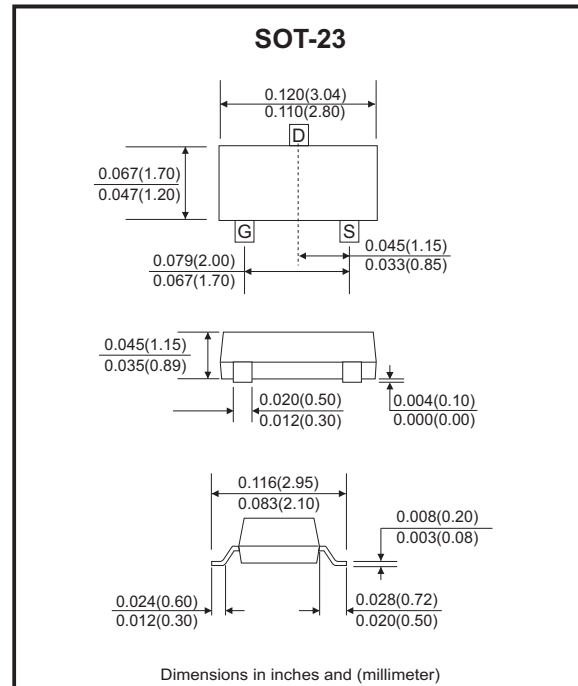
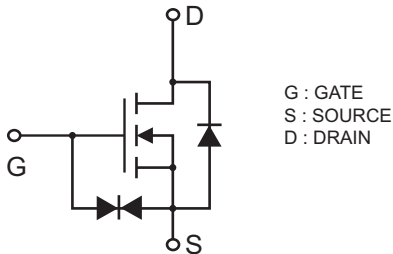
N-Channel
RoHS Device
Halogen Free



Features

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

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 (Note 3)	I_D	$T_A = 25^\circ\text{C}, V_{GS} = 10\text{V}$	2.2
		$T_A = 70^\circ\text{C}, V_{GS} = 10\text{V}$	1.8
Pulsed drain current (Note 1 & 2)	I_{DM}	10	A
Maximum power dissipation (Note 3)	P_D	$T_A = 25^\circ\text{C}$	1.38
		$T_A = 70^\circ\text{C}$	0.88
Maximum thermal resistance from junction to ambient (Note 3)	$R_{\theta JA}$	90	$^\circ\text{C/W}$
Maximum thermal resistance from junction to case (Note 3)	$R_{\theta JC}$	62	
Operating junction temperature range	T_J	-55 to +150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. Surface mounted on 1 in² copper pad of FR-4 board; 270 $^\circ\text{C/W}$ when mounted on minimum copper pad.

Company reserves the right to improve product design, functions and reliability without notice.

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-states 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-souce 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 souce-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

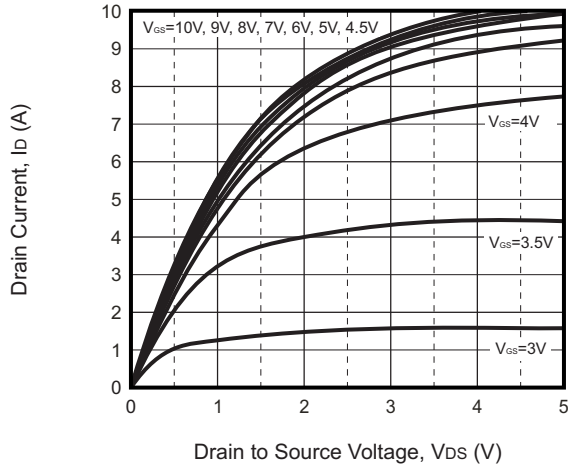


Fig.2 - Static Drain-Source On-State Resistance vs. Drain Current

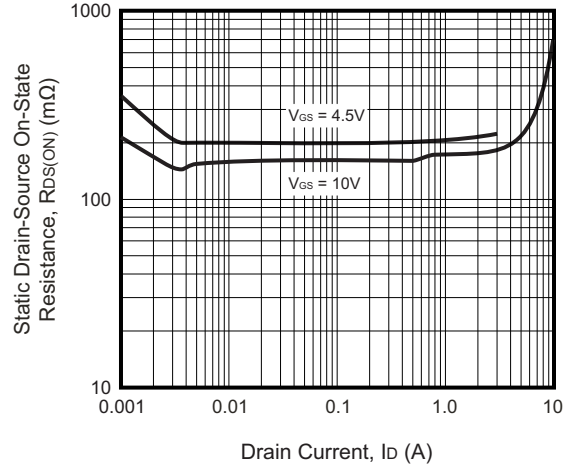


Fig.3 - Static Drain-Source On-State Resistance vs. Gate-Source Voltage

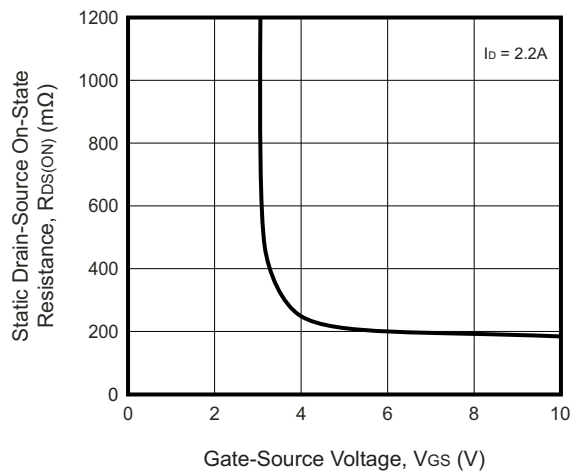


Fig.4 - Capacitance vs. Drain-Source Voltage

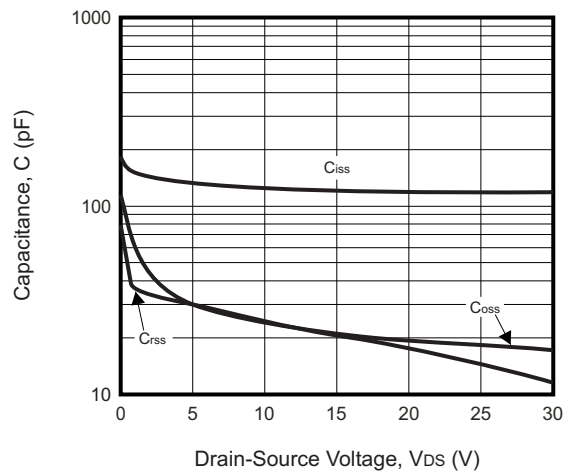


Fig.5 - Forward Transfer Admittance vs. Drain Current

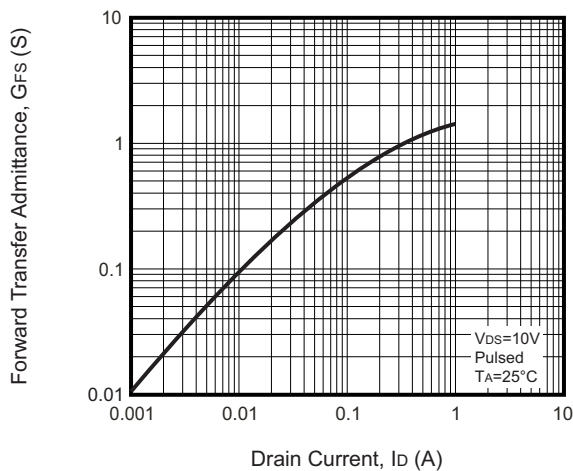
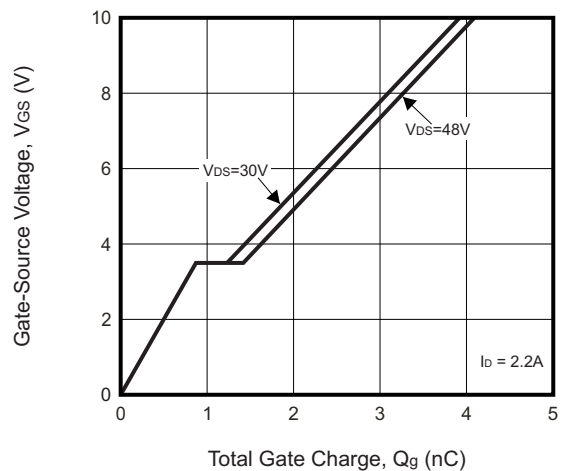
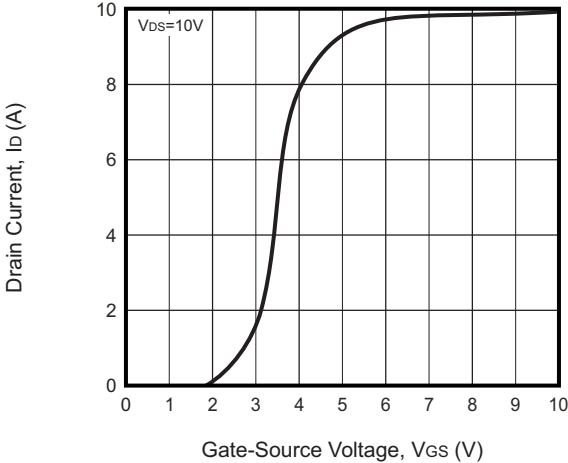


Fig.6 - Gate Charge Characteristics

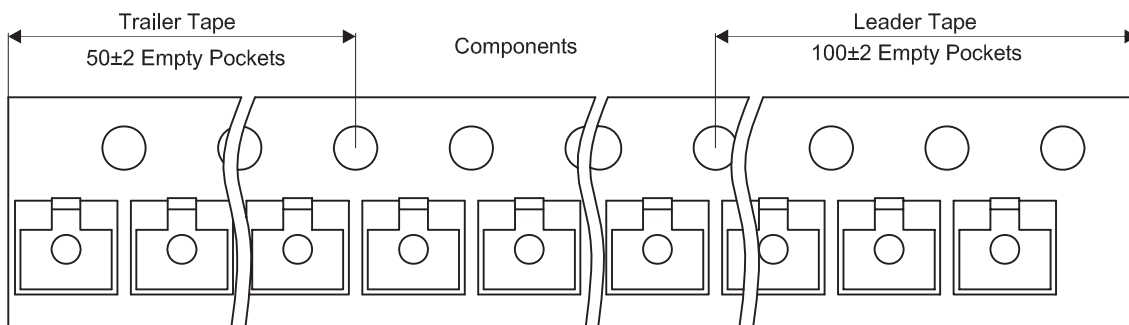
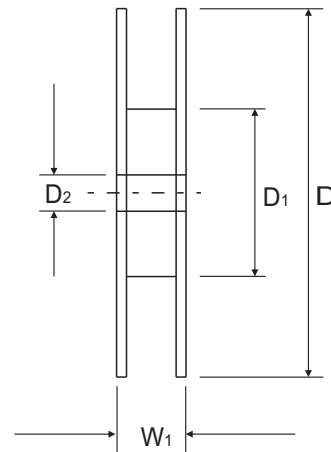
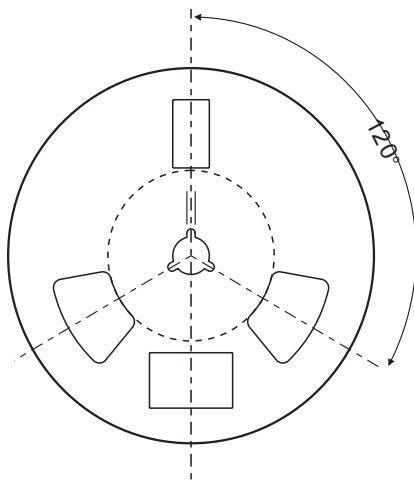
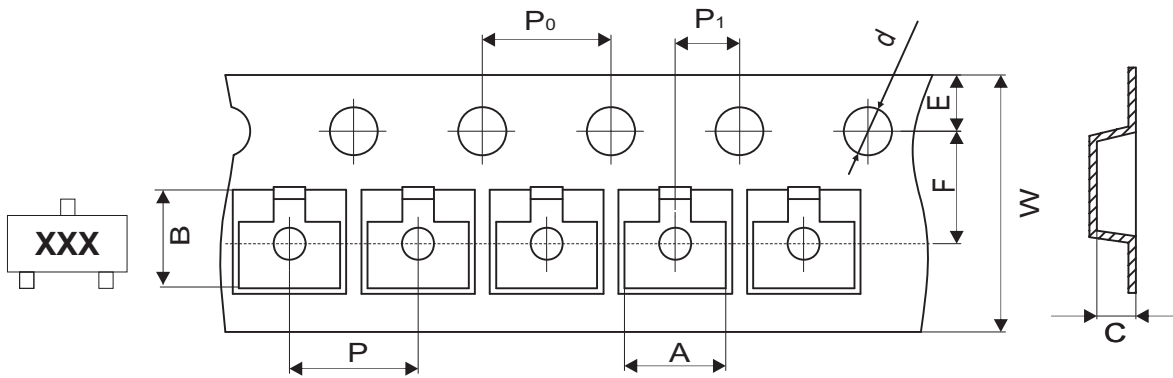


TYPICAL RATING AND CHARACTERISTIC CURVES (CMS02N06KT-HF)

Fig.7 - Typical Transfer Characteristics



TYPICAL RATING AND CHARACTERISTIC CURVES (CMS02N06KT-HF)



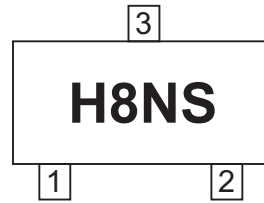
SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.17 ± 0.10	3.23 ± 0.10	1.37 ± 0.10	1.50 + 0.10	178.00 ± 1.00	55.00 ± 1.00	13.00 ± 0.50
	(inch)	0.125 ± 0.004	0.127 ± 0.004	0.054 ± 0.004	0.059 + 0.004	7.008 ± 0.039	2.165 ± 0.039	0.512 ± 0.020

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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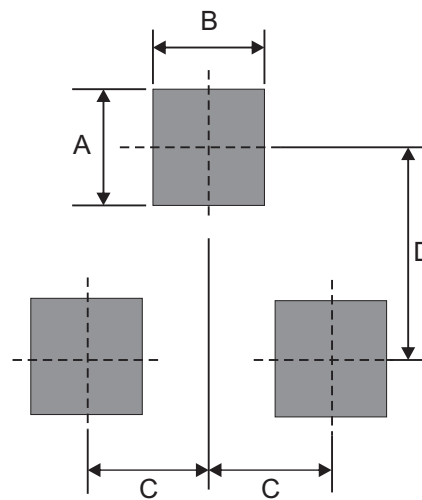
Marking Code

Part Number	Marking Code
CMS02N06KT-HF	H8NS



Suggested 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