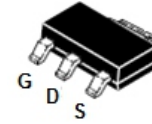


CMS03N10Y-HF

**N-Channel
RoHS Device
Halogen Free**



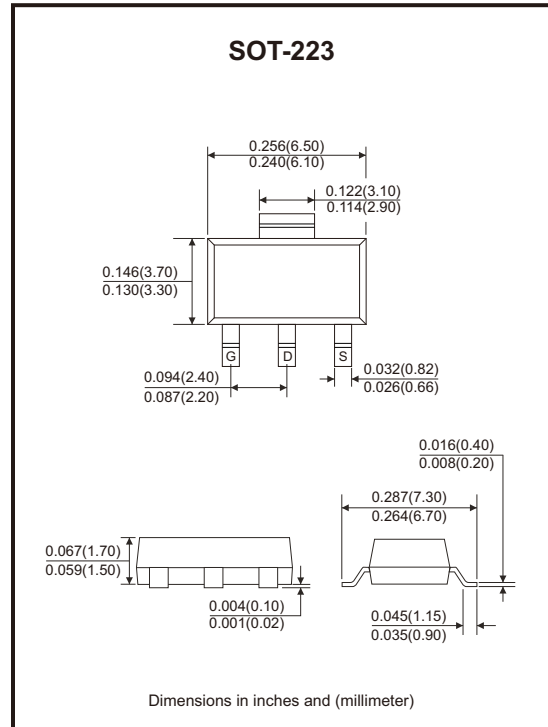
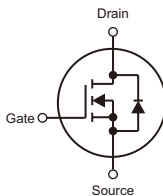
Features

- Extremely low switching loss.
- Excellent stability and uniformity.

Mechanical data

- Case: SOT-223, 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 TC=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DSS}	100	V
Gate-source voltage	V_{GSS}	±20	V
Continuous drain current	I_D	3	A
Pulsed drain current	I_{DM}	20	A

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

Parameter	Symbol	Value	Unit
Power dissipation @ TA=25°C	P_D	1.8	W
Thermal resistance junction to air (Note 1)	$R_{\theta JA}$	70	°C/W
Operating junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Electrical Characteristics (at $T_c=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics						
Static drain-source on-resistance (Note 2)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3A$			140	m Ω
		$V_{GS} = 4.5V, I_D = 2A$			180	
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1		2.5	V
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 50V, f = 1MHz$		165		pF
Output capacitance	C_{oss}			55		
Reverse transfer capacitance	C_{rss}			7.5		
Switching Characteristics						
Turn-on delay time (Note 3)	$t_{d(on)}$	$V_{DD} = 50V, V_{GS} = 10V, R_G = 2\Omega, I_D = 3A$		13.2		ns
Turn-on rise time (Note 3)	t_r			2.2		
Turn-off delay time (Note 3)	$t_{d(off)}$			11		
Turn-off fall time (Note 3)	t_f			1.1		
Total gate charge	Q_g	$V_{DD} = 50V, V_{GS} = 10V, I_D = 3A$		3.3		nC
Gate to source charge	Q_{gs}			0.35		
Gate to drain (miller) charge	Q_{gd}			0.87		
Source-Drain Diode Characteristics						
Diode forward voltage (Note 2)	V_{SD}	$I_{SD} = 3A, V_{GS} = 0V$			1	V
Reverse recovery time	t_{rr}	$V_{GS} = 0V, I_F = 3A, di_F/dt = 100A/\mu s$		27		ns
Reverse recovery charge	Q_{rr}			35		nC

- Notes: 1. The data tested by surface mounted on a FR-4 board.
 2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 3. Guaranteed by design, not subject to production.

Rating and Characteristic Curves (CMS03N10Y-HF)

Fig.1 - Typical Output Characteristics

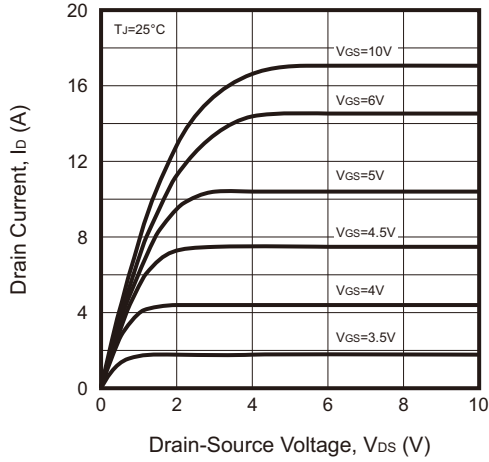


Fig.2 - On-Resistance vs. Drain Current and Gate Voltage

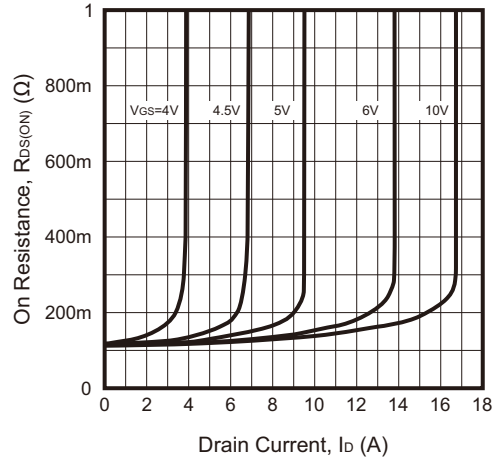


Fig.3 - Breakdown Voltage vs. Junction Temperature

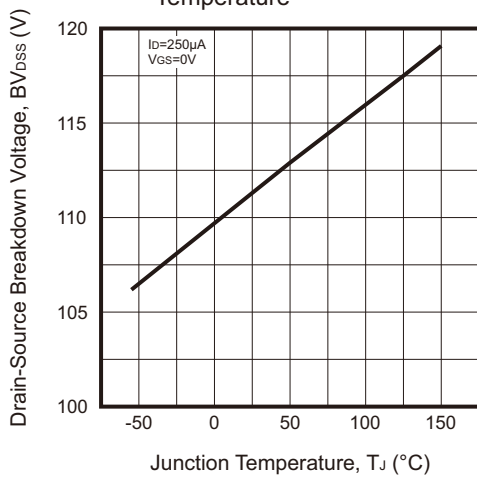


Fig.4 - Body-Diode Characteristics

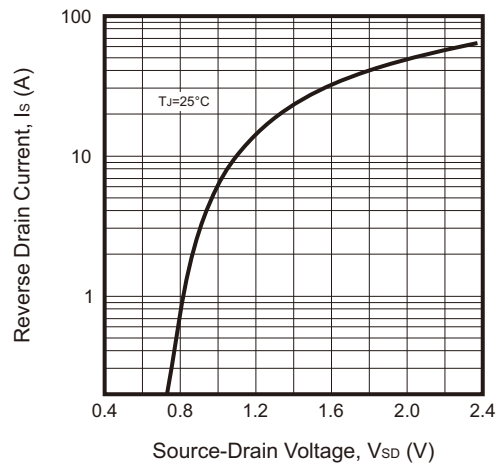


Fig.5 - On-Resistance vs. Junction Temperature

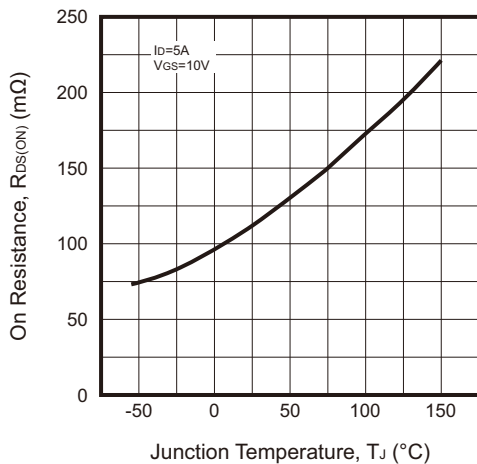
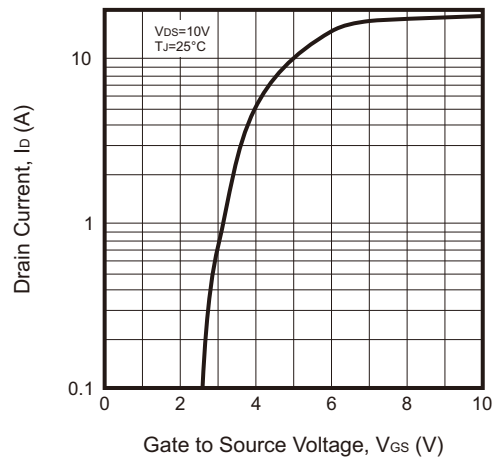


Fig.6 - Transfer Characteristics



Rating and Characteristic Curves (CMS03N10Y-HF)

Fig.7 - Capacitance Characteristics

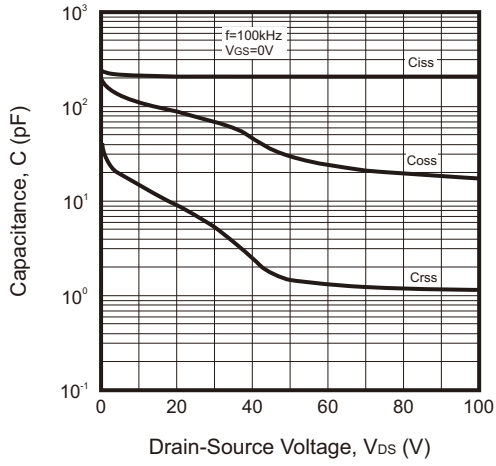
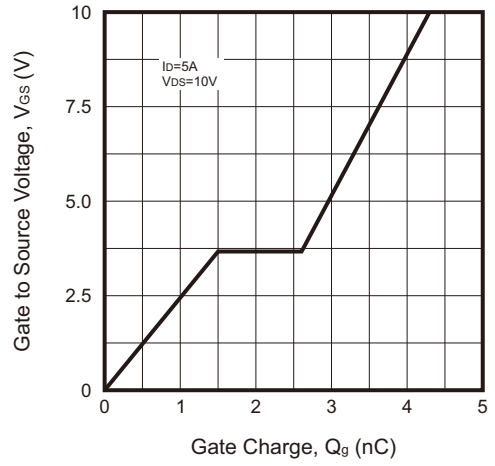
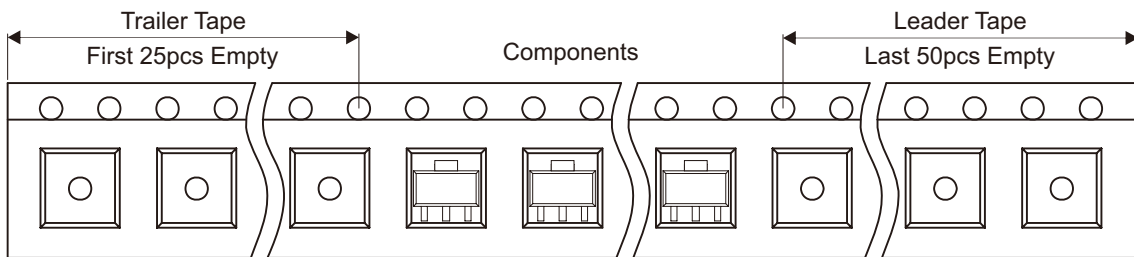
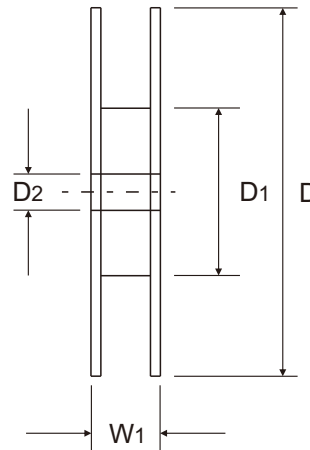
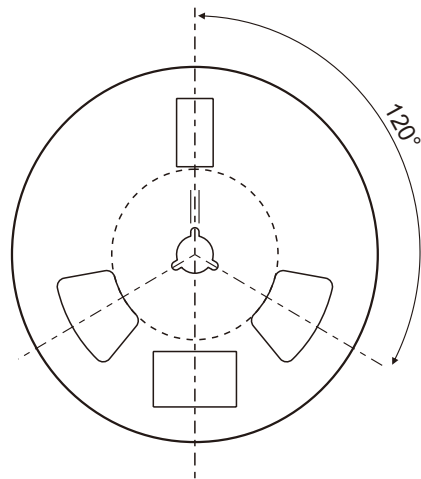
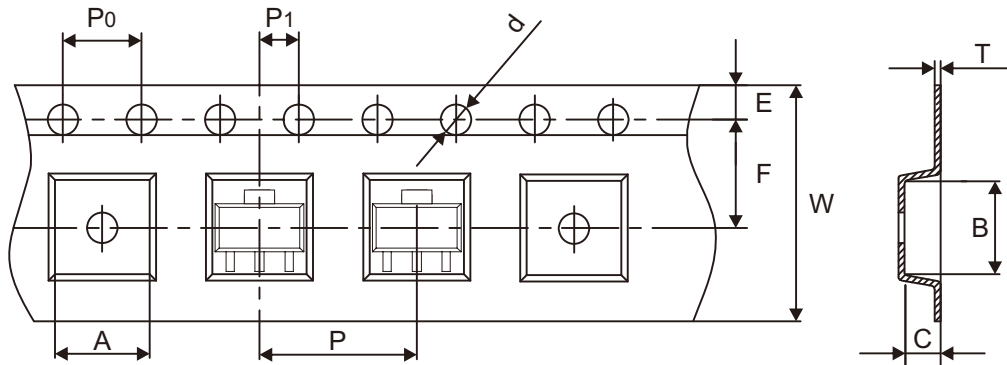


Fig.8 - Gate-Charge Characteristics



Reel Taping Specification

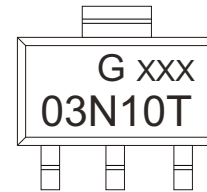


SOT-223	SYMBOL	A	B	C	d	D	D ₁	D ₂
	(mm)	7.05 ± 0.10	7.40 ± 0.10	1.90 ± 0.10	1.55 ± 0.05	330.00 ± 2.00	100.00 ± 2.00	13.00 ± 0.20
	(inch)	0.278 ± 0.004	0.291 ± 0.004	0.075 ± 0.004	0.061 ± 0.002	12.992 ± 0.079	3.937 ± 0.079	0.512 ± 0.008

SOT-223	SYMBOL	E	F	P	P ₀	P ₁	T	W	W ₁
	(mm)	1.75 ± 0.10	5.50 ± 0.10	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	0.25 ± 0.05	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 ± 0.004	0.010 ± 0.002	0.472 + 0.012 - 0.004	0.728 ± 0.079

Marking Code

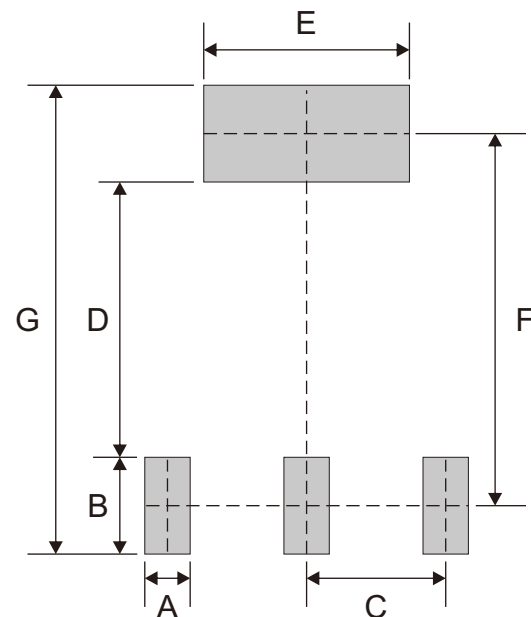
Part Number	Marking Code
CMS03N10Y-HF	03N10T



XXX = Control code

Suggested P.C.B. PAD Layout

SIZE	SOT-223	
	(mm)	(inch)
A	0.75	0.030
B	1.60	0.063
C	2.30	0.091
D	4.55	0.179
E	3.40	0.134
F	6.15	0.242
G	7.75	0.305



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-223	4,000	13