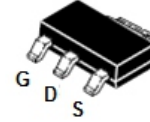


CMS04P06Y-HF

P-Channel

RoHS Device

Halogen Free



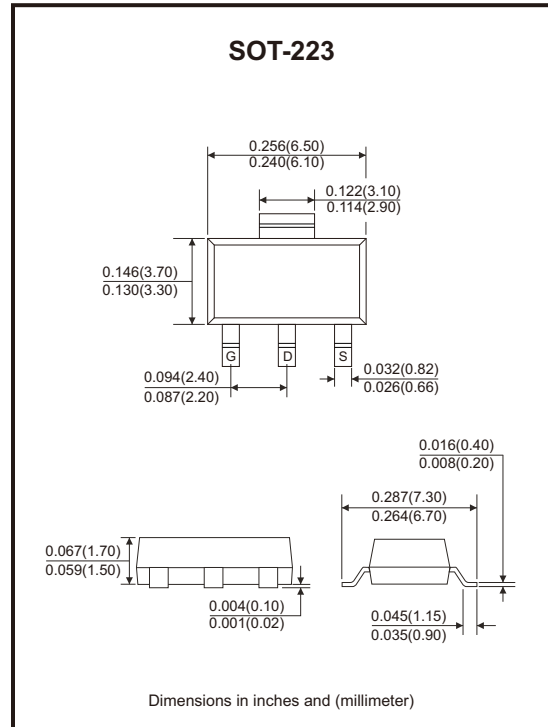
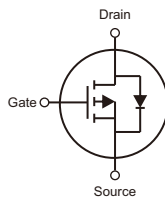
Features

- High density cell design for ultralow $R_{DS(ON)}$.
- Fully characterized avalanche voltage and current.
- Excellent package for good heat dissipation.

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 $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-60	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current	I_D	-4	A
Pulsed drain current (Note 1)	I_{DM}	-20	A
Power dissipation	P_D	3.1	W
Thermal resistance junction to air (Note 2)	$R_{\theta JA}$	40.3	$^{\circ}\text{C/W}$
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	V _{DSS}	V _{GS} = 0V, I _D = -250μA	-60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -60V, 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 3)	R _{DS(on)}	V _{GS} = -10V, I _D = -4A		70	90	mΩ
		V _{GS} = -4.5V, I _D = -4A		100	135	
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.6	-3	V
Dynamic Characteristics						
Forward Transconductance	g _{fs}	V _{DS} = -5V, I _D = -4A		10		S
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -30V, f = 1MHz		930		pF
Output capacitance	C _{oss}			55		
Reverse transfer capacitance	C _{rss}			41		
Turn-on delay time (Note 4)	t _{d(on)}	V _{DD} = -30V, V _{GS} = -10V, R _G = 3Ω, R _L = 7.5Ω		8		ns
Turn-on rise time (Note 4)	t _r			4		
Turn-off delay time (Note 4)	t _{d(off)}			32		
Turn-off fall time	t _f			7		
Switching Characteristics						
Total gate charge	Q _g	V _{DD} = -30V, I _D = -4A, V _{GS} = -10V		20		nC
Gate to source charge	Q _{gs}			3.1		
Gate to drain (miller) charge	Q _{gd}			3.2		
Source-Drain Diode Characteristics						
Diode forward voltage (Note 3)	V _{SD}	I _{SD} = -4A, V _{GS} = 0V			-1.2	V
Continuous source current (body diode)	I _{SD}				-4	A
Pulse forward current (body diode)	I _{SM}				-20	A
Reverse recovery time	t _{rr}	I _{SD} = -4A, V _{GS} = 0V, dI/dt = 100A/μs		23.5		ns
Reverse recovery charge	Q _{rr}			11.5		nC

Notes: 1. Repetitive rating: Pulse width limited by maximum junction temperature.

2. Mounted on a 1in² pad of 2oz copper on FR4 board.

3. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

4. Guaranteed by design, not subject to production.

Rating and Characteristic Curves (CMS04P06Y-HF)

Fig.1 - Output Characteristics

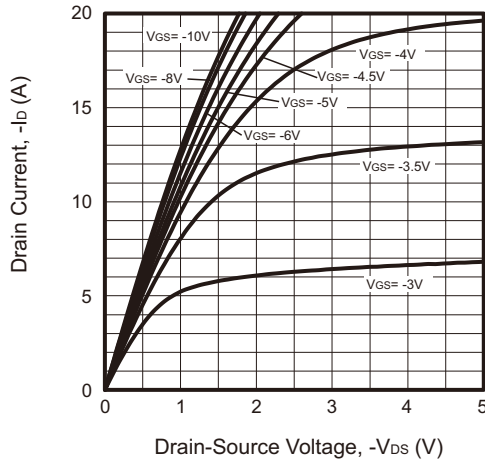


Fig.2 - On Resistance vs. Drain Current and Gate Voltage

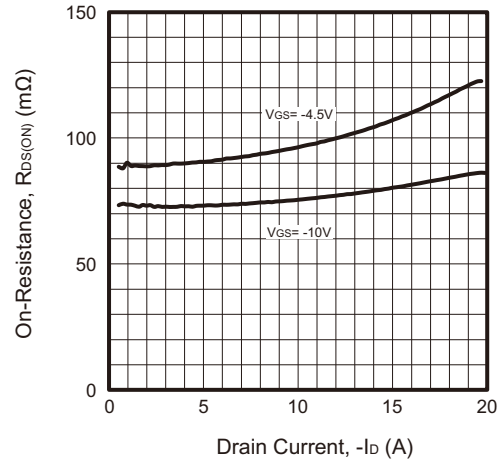


Fig.3 - On Resistance vs Gate-Source Voltage

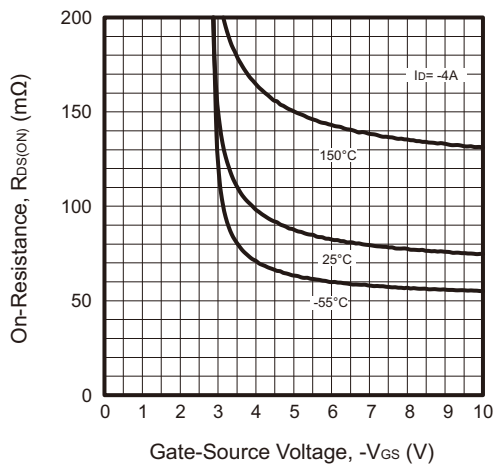


Fig.4 - Body-Diode Characteristics

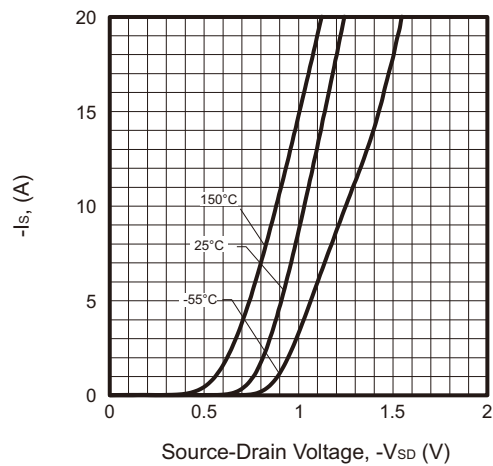


Fig.5 - Normalized On-Resistance vs. Junction Temperature

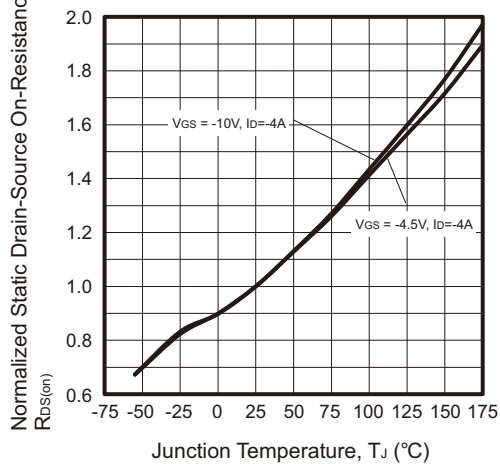
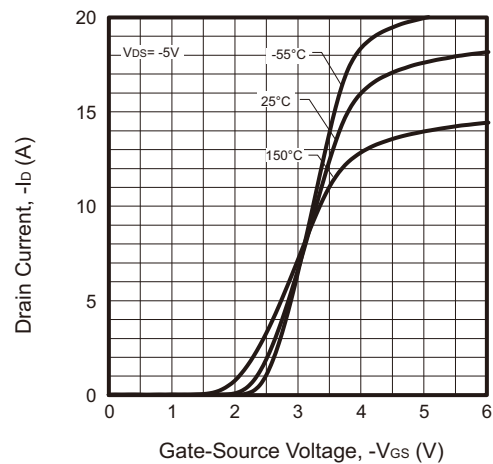


Fig.6 - Transfer Characteristics



Rating and Characteristic Curves (CMS04P06Y-HF)

Fig.7 - Capacitance Characteristics

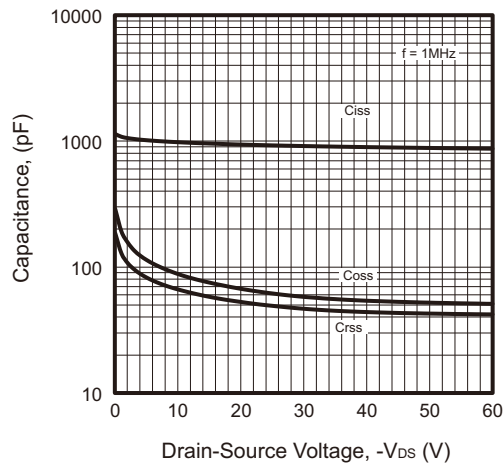


Fig.8 - Gate Charge Characteristics

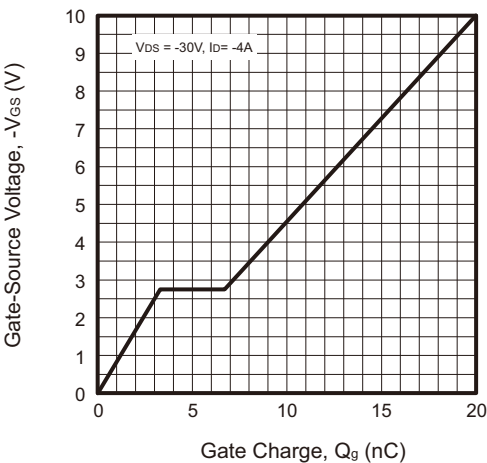


Fig.9 - Normalized Breakdown Voltage vs. Junction Temperature

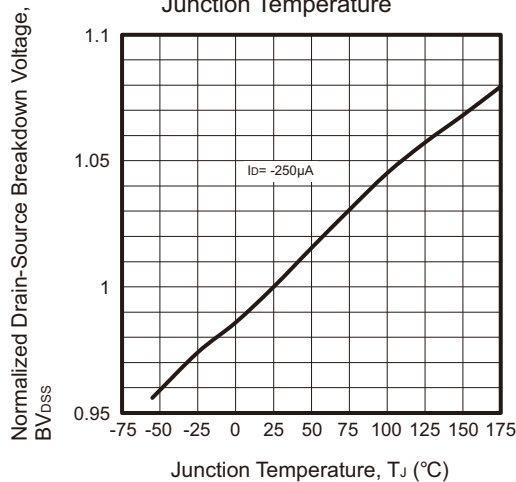
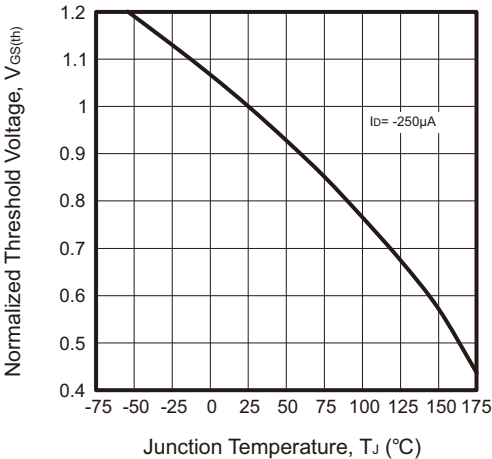
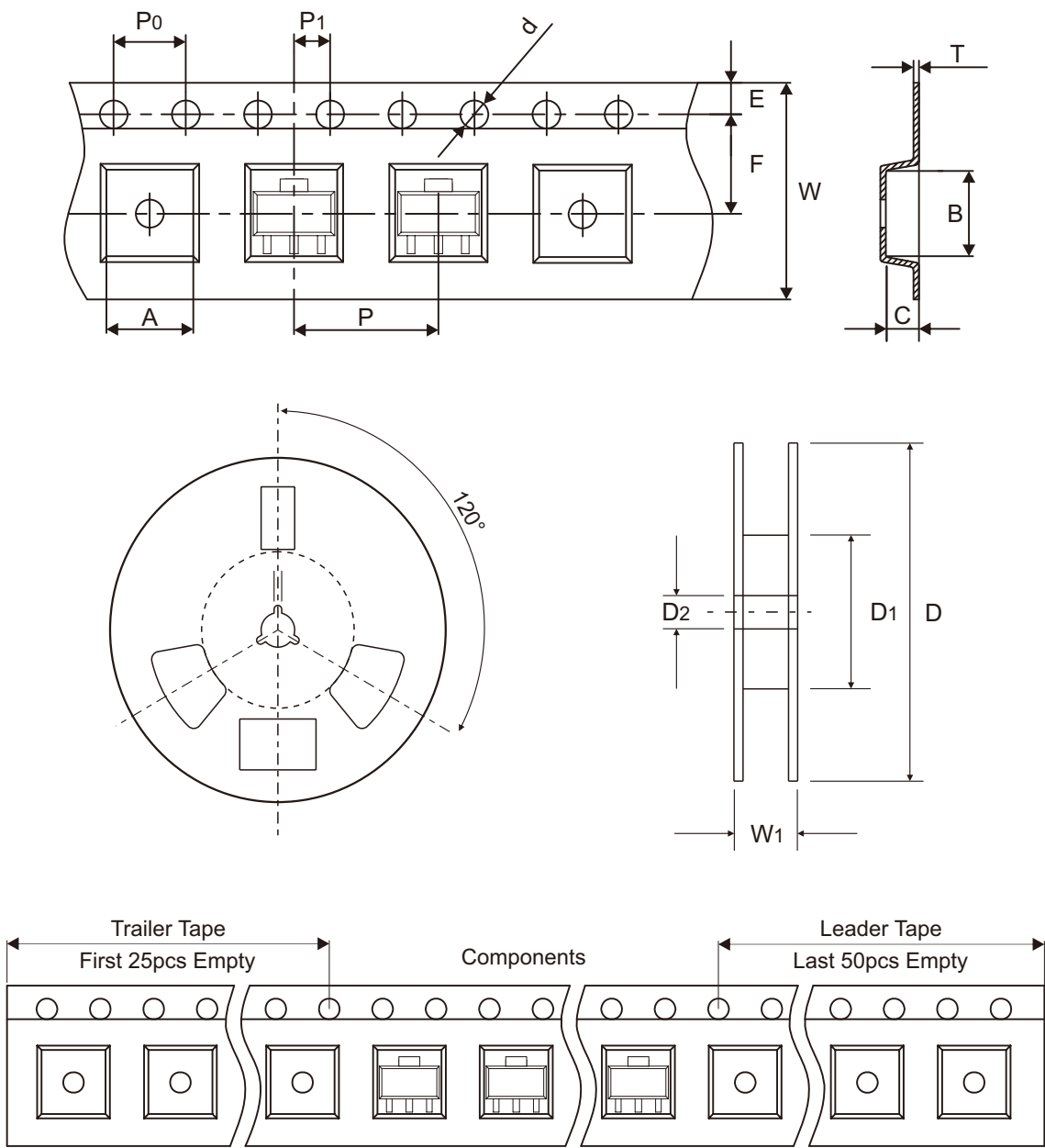


Fig.10 - Normalized V_{GS(th)} vs. Junction Temperature



Reel Taping Specification

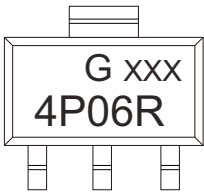


SOT-223	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	7.05 ± 0.10	7.40 ± 0.10	1.90 ± 0.10	1.55 ± 0.05	330.00 ± 2.00	100.00 ± 2.00	13.00 ± 0.20
	(inch)	0.278 ± 0.004	0.291 ± 0.004	0.075 ± 0.004	0.061 ± 0.002	12.992 ± 0.079	3.937 ± 0.079	0.512 ± 0.008

SOT-223	SYMBOL	E	F	P	P0	P1	T	W	W1
	(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

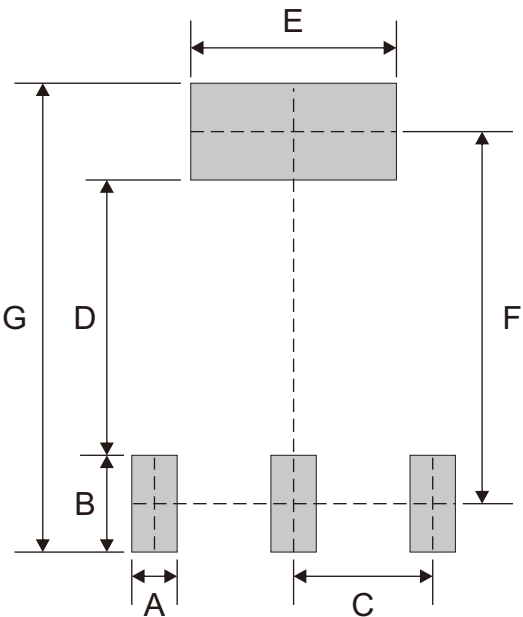
Part Number	Marking Code
CMS04P06Y-HF	4P06R



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