CMS15P03Q8-HF

P-Channel
RoHS Device
Halogen Free

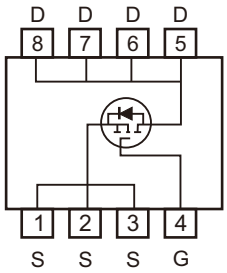
Features

- Simple drive requirement.
- Low on-resistance.
- Fast switching speed.

Mechanical data

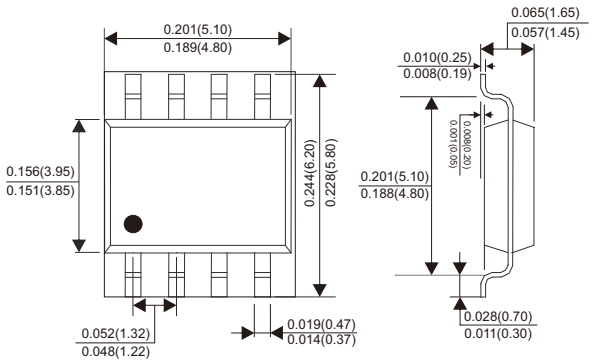
- Epoxy : UL 94V-0 rated flame retardant.
- Case : SOP-8, molded plastic.
- Lead : Pure tin plated.

Circuit Diagram



G : Gate
S : Source
D : Drain

SOP-8



Dimensions in inches and (millimeter)

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

Parameter		Symbol	Value	Unit
Drain-source breakdown voltage		BV_{DSS}	-30	V
Gate-source voltage		V_{GS}	±25	V
Continuous drain current @ T_A=25°C		I_D	-15	A
Continuous drain current @ T_A=100°C		I_D	-9.5	A
Pulsed drain current (Note 1)		I_{DM}	-160	A
Avalanche current		I_{AS}	-15	A
Avalanche energy @ L=0.1mH, I_D=-15A, R_G=25Ω		E_{AS}	11.25	mJ
Power dissipation (Note 2)	T_A=25°C	P_D	3.1	W
	T_A=100°C		1.2	
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. Surface mounted on 1 in² copper pad of FR-4 board , t≤10s.

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

Electrical Characteristics (T_A=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	-30			V
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = -250μA	-1	-1.5	-2.5	
Gate-source leakage	I_{GSS}	V_{GS} = ±25V, V_{DS} = 0V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V			-1	μA
	I_{DSS}	V_{DS} = -20V, V_{GS} = 0V, T_J = 125˚C			-10	
Drain-source on-state resistance (Note 1)	$R_{DS(on)}$	I_D = -15A, V_{GS} = -10V		7.7	9	mΩ
		I_D = -10A, V_{GS} = -4.5V		11.4	18	
		I_D = -10A, V_{GS} = -3V		20.3	40	
Forward transconductance (Note 1)	G_{FS}	V_{DS} = -5V , I_D = -15A		28		S
Dynamic						
Input capacitance	C_{iss}	V_{DS} = -15V, V_{GS} = 0V, f = 1MHz		4022		pF
Output capacitance	C_{oss}			498		
Reverse transfer capacitance	C_{rss}			442		
Turn-on delay time (Note 1&2)	$t_{d(on)}$	V_{DS} = -15V, V_{GS} = -10V I_D = -15A , R_G = 3Ω		21		nS
Turn-on rise time (Note 1&2)	t_r			19		
Turn-off delay time (Note 1&2)	$t_{d(off)}$			57		
Turn-off fall time (Note 1&2)	t_f			22		
Total gate charge (Note 1&2)	Q_g	V_{DS} = -15V, I_D = -15A, V_{GS} = 10V		56		nC
Total gate charge (Note 1&2)	Q_g	V_{DS} = -15V, I_D = -15A, V_{GS} = 4.5V		36		
Gate-soutce charge (Note 1&2)	Q_{gs}	V_{DS} = -15V, I_D = -15A, V_{GS} = -10V		15		
Gate-drain charge (Note 1&2)	Q_{gd}			18		
Gate resistance	Rg	V_{GS} = 15mV, V_{DS} = 0, f = 1MHz		3		
Source-Drain Diode						
Continuous source-drain diode current	I_S				-10	A
Pulse diode forward current (Note 3)	I_{SM}				-40	
Body diode voltage (Note 1)	V_{SD}	I_F = I_S, V_{GS} = 0V		-0.81	-1.2	V
Reverse recovery time	t_{rr}	I_F = -10A, dI_F/dt = 100A/μs		32		nS
Recovered charge	Q_{rr}			26		nC
Source-Drain Diode						
Thermal resistance	$R_{\Theta JC}$	Junction to case		22	25	°C/W
	$R_{\Theta JA}$	Junction to ambient (Note 4)		33	40	

Notes: 1. Pulse test: Pulse width ≤300μs, Duty cycle ≤ 2% .
2. Independent of operating temperature.
3. Pulse width limited by maximum junction temperature.
4. Width mounted on a 1 in² pad of 2 oz copper, t≤10s; 125°C/W when mounted on minimum copper pad.

Rating and Characteristic Curves (CMS15P03Q8-HF)

Fig.1 - Typical Output Characteristics

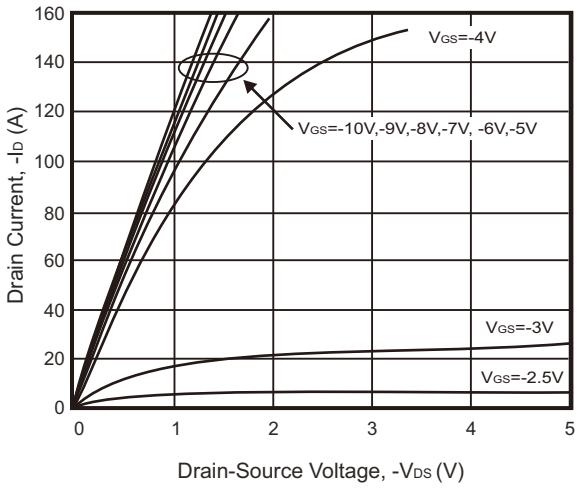


Fig.2 - Static Drain-Source On-State Resistance VS Drain Current

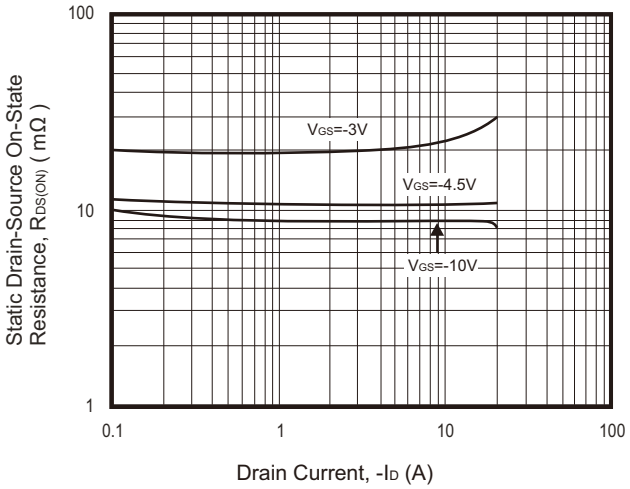


Fig.3 - Static Drain-Source On-State Resistance VS Gate-Source Voltage

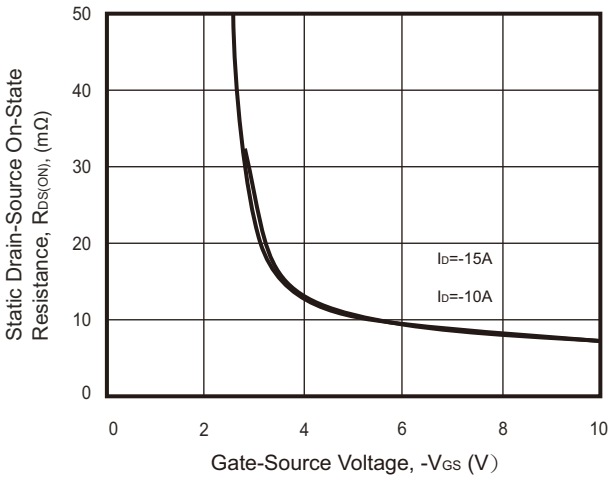


Fig.4 - Capacitance VS Drain-Source Voltage

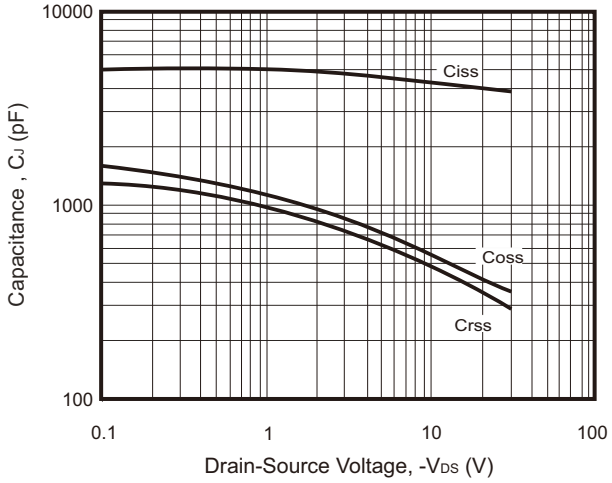


Fig.5 - Forward Transfer Admittance vs Drain Current

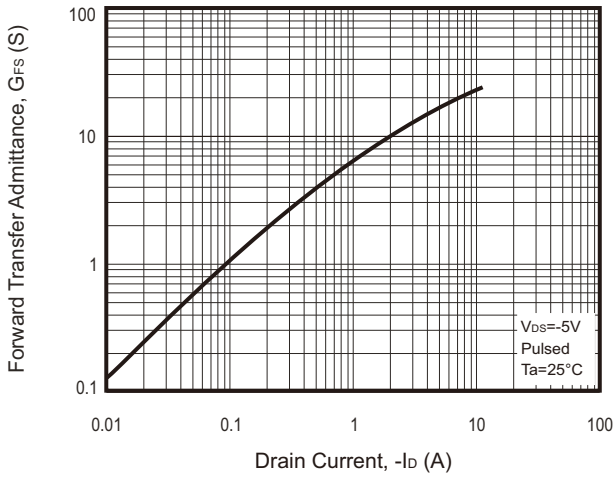
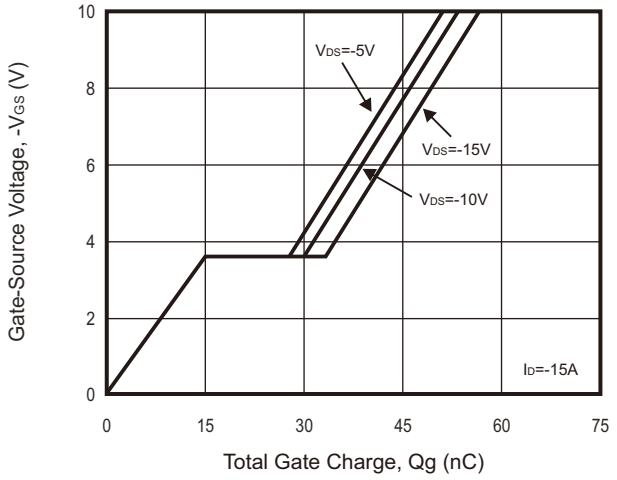


Fig.6 - Gate Charge Characteristics



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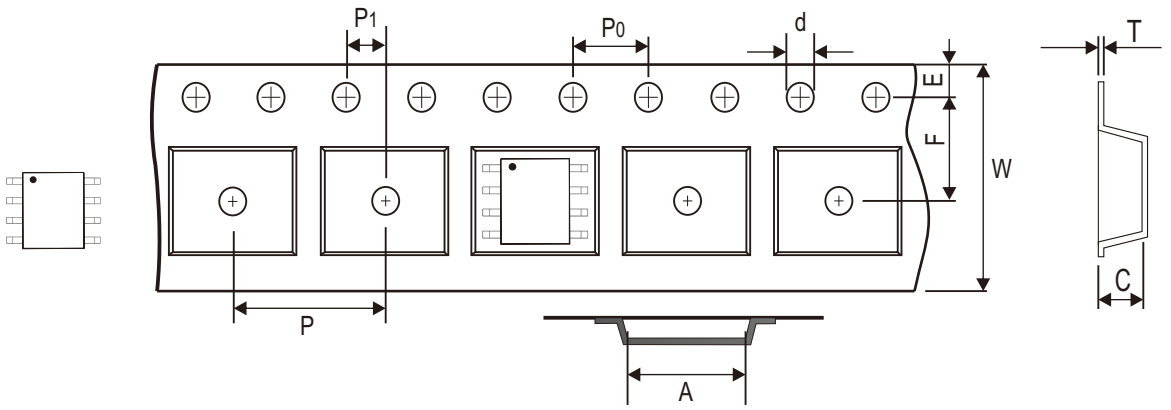
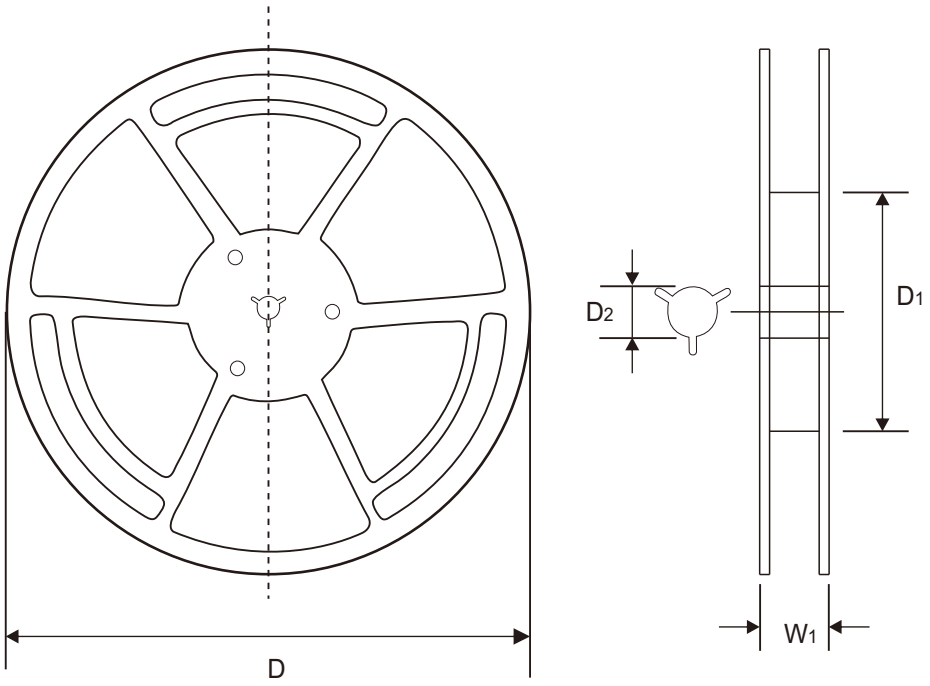
Reel Taping Specification



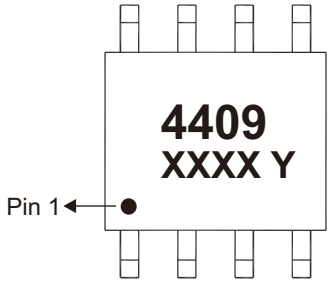


	SYMBOL	A	B	C	d	D	D1	D2
SOP-8	(mm)	6.40 ± 0.10	5.20 ± 0.10	2.10 ± 0.10	1.50 + 0.10 - 0.00	330.00 ± 1.00	100.00 ± 0.50	13.00 ± 0.20
	(inch)	0.252 ± 0.004	0.205 ± 0.004	0.083 ± 0.004	0.059 + 0.004 - 0.000	12.992 ± 0.039	3.937 ± 0.020	0.512 ± 0.008

	SYMBOL	E	F	P	P0	P1	T	W	W1
SOP-8	(mm)	1.75 ± 0.10	5.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.25 ± 0.02	12.00 + 0.30 - 0.10	17.60 + 1.00 - 0.00
	(inch)	0.069 ± 0.004	0.217 ± 0.002	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.010 ± 0.001	0.472 + 0.012 - 0.004	0.693 + 0.039 - 0.000

Marking Code

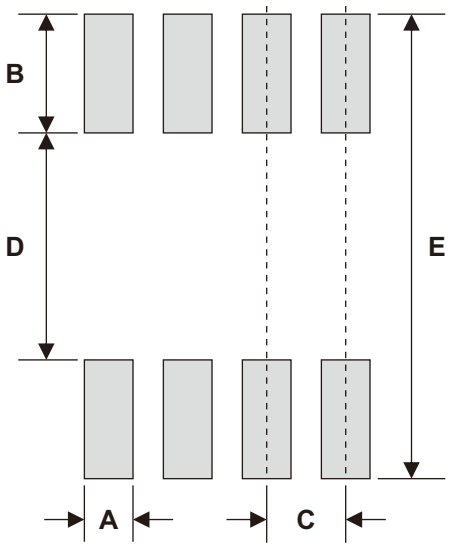
Part Number	Marking Code
CMS15P03Q8-HF	4409



XXXX Y = Control code

Suggested P.C.B. PAD Layout

SIZE	SOP-8	
	(mm)	(inch)
A	0.60	0.024
B	1.52	0.060
C	1.27	0.050
D	4.00	0.157
E	7.00	0.276



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOP-8	4,000	13