

CMS05P03Q8-HF

P-Channel

RoHS Device

Halogen Free



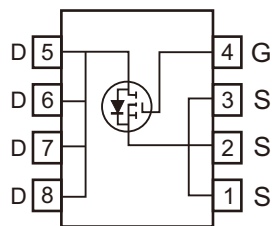
Features

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

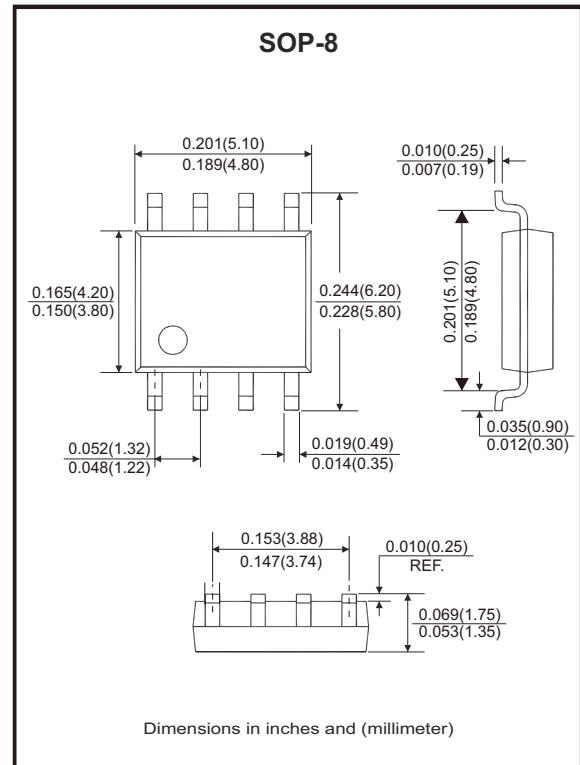
Mechanical data

- Case: SOP-8, molded plastic.
- Mounting position: Any.

Circuit Diagram



G : GATE
S : SOURCE
D : DRAIN



Maximum Ratings (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-source breakdown voltage		BV_{DS}	-30	V
Gate-source voltage		V_{GS}	± 25	V
Continuous drain current @ $V_{GS}=-10\text{V}$, $T_A=25^\circ\text{C}$ (Note 1)		I_D	-5.3	A
Pulsed drain current (Note 2)		I_{DM}	-24	A
Total power dissipation (Note 1)		P_D	2.5	W
Linear derating factor			0.02	W/ $^\circ\text{C}$
Max. Thermal resistance	Junction to ambient (Note 3)	$R_{\theta JA}$	50	$^\circ\text{C}/\text{W}$
	Junction to case	$R_{\theta JC}$	25	$^\circ\text{C}/\text{W}$
Operating junction temperature range		T_J	-55 to +150	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55 to +150	$^\circ\text{C}$

Note: 1. Surface mounted on FR4 board, $t \leq 10$ sec.

2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

3. Surface mounted on 1 in² copper pad of FR4 board, width $\leq 10\text{s}$.

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

REV:C

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	-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} = -30V , V _{GS} = 0V			-1	μA
Drain-source on-state resistance	* R _{DS(on)}	I _D = -5.3A, V _{GS} = -10V		30	40	mΩ
		I _D = -4.2A, V _{GS} = -4.5V		43	60	
Forward transconductance	* G _{FS}	V _{DS} = -5V , I _D = -5.3A		8		S
Dynamic						
Input capacitance	C _{iss}	V _{DS} = -15V , V _{GS} = 0V, f = 1MHz		630		pF
Output capacitance	C _{oss}			76		
Reverse transfer capacitance	C _{rss}			64		
Turn-on delay time	*t _{d(on)}	V _{DD} = -15V, I _D = -1A, V _{GS} = -10V, R _g = 6Ω		6		nS
Turn-on rise time	* t _r			17.4		
Turn-off delay time	* t _{d(off)}			63.6		
Turn-off fall time	* t _f			33.8		
Total gate charge	* Q _g	V _{DS} = -15V, V _{GS} =-10V, I _D = -5.3A		14.2		nC
Gate-source charge	* Q _{gs}			2.1		
Gate-drain charge	* Q _{gd}			2.8		
Source-Drain Diode						
Diode forward voltage	* V _{SD}	V _{GS} = 0V, I _S = -1.7A		-0.79	-1.2	V

*Pulse test: Pulse width ≤ 300μs, Duty cycle ≤ 2%

Rating and characteristic Curves (CMS05P03Q8-HF)

Fig.1 - Typical Output Characteristics

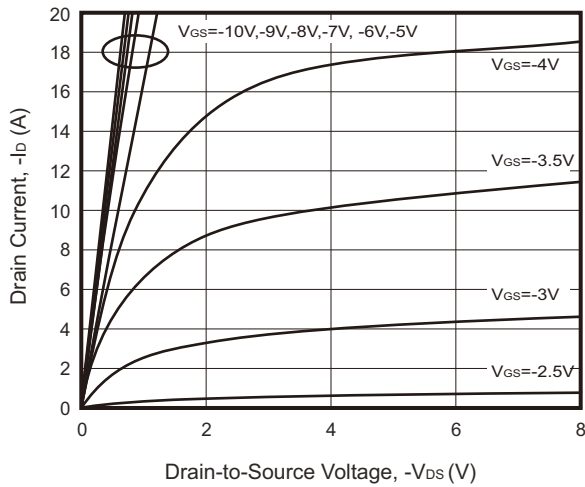


Fig.2 - Static Drain-Source On-State Resistance VS Drain Current

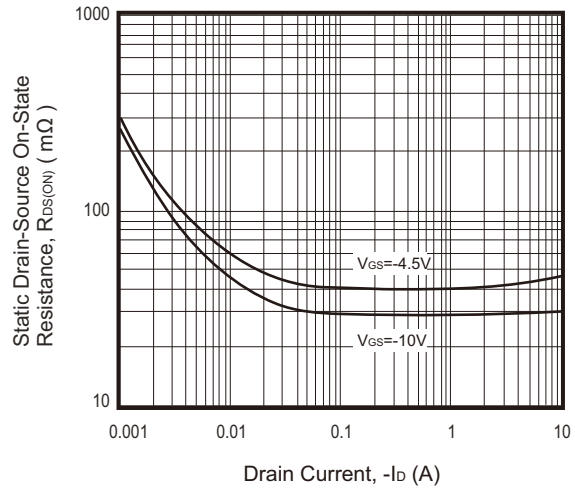


Fig.3 - Static Drain-Source On-State Resistance VS Gate-Source Voltage

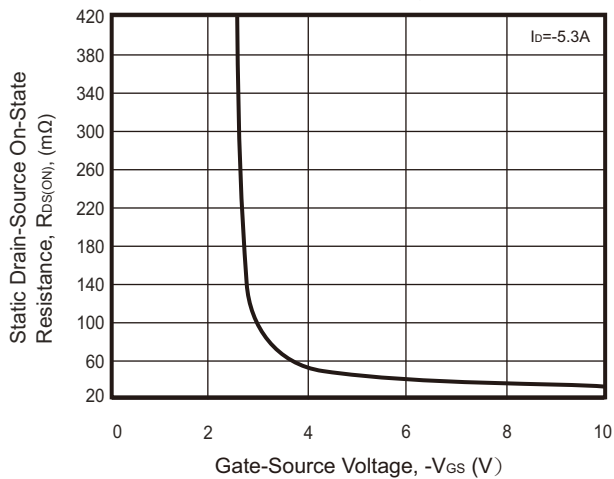


Fig.4 - Capacitance VS Drain-to-Source Voltage

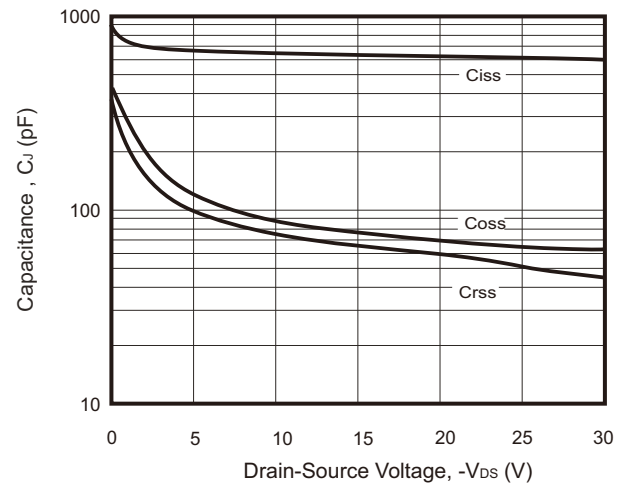


Fig.5 - Forward Transfer Admittance VS Drain Current

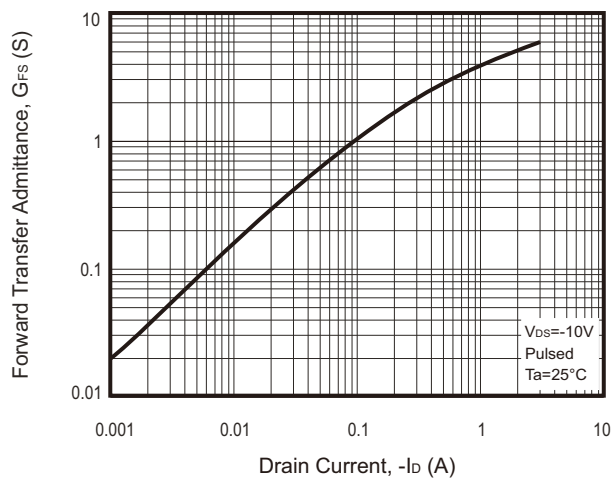
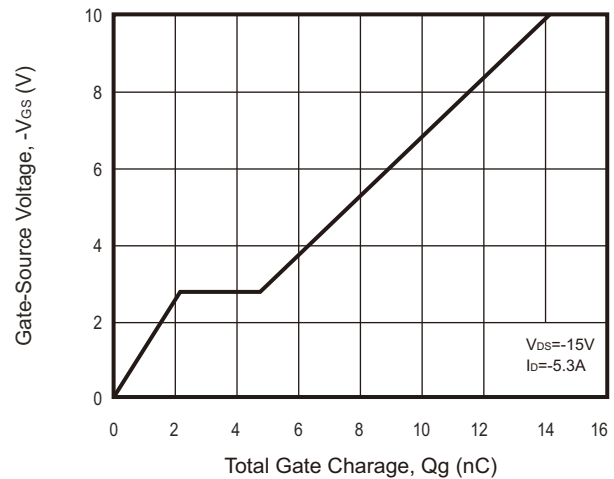


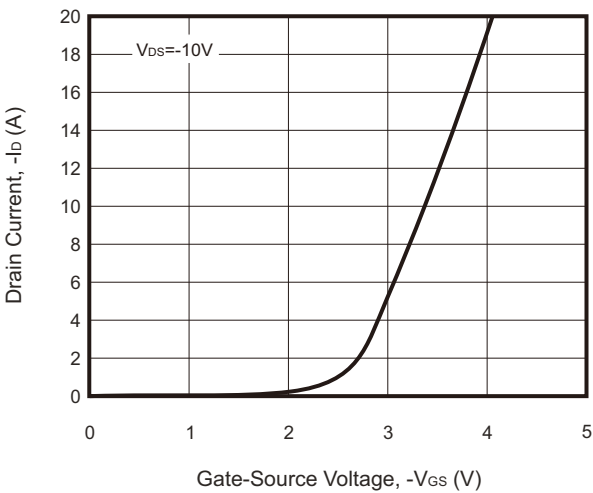
Fig.6 - Gate Charge Characteristics



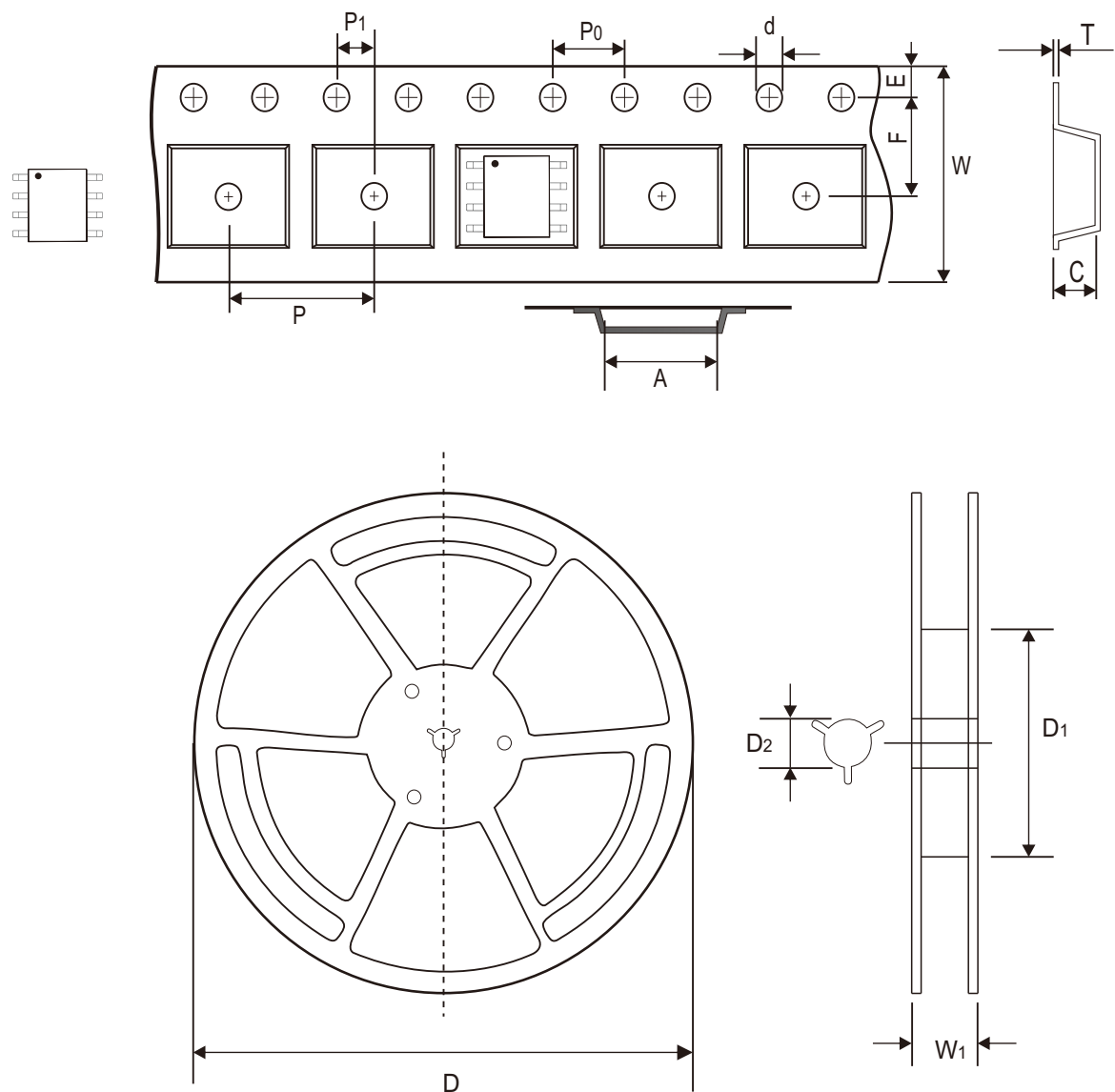
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Fig.7 - Typical Transfer Characteristics



Reel Taping Specification



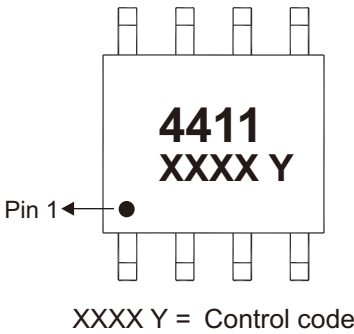
SOP-8	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	6.40 ± 0.10	5.20 ± 0.10	2.10 ± 0.10	1.50 + 0.10 - 0.00	330.00 ± 1.00	100.00 ± 0.50	13.00 ± 0.20
	(inch)	0.252 ± 0.004	0.205 ± 0.004	0.083 ± 0.004	0.059 + 0.004 - 0.000	12.992 ± 0.039	3.937 ± 0.020	0.512 ± 0.008

SOP-8	SYMBOL	E	F	P	P0	P1	T	W	W1
	(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

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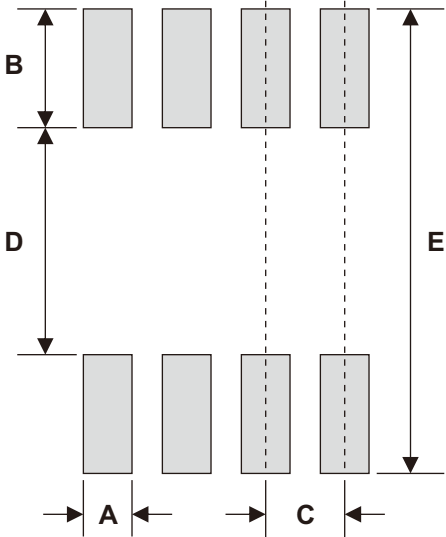
Marking Code

Part Number	Marking Code
CMS05P03Q8-HF	4411



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