

CMS06PP03Q8-HF

Dual P-Channel
RoHS Device
Halogen Free



Features

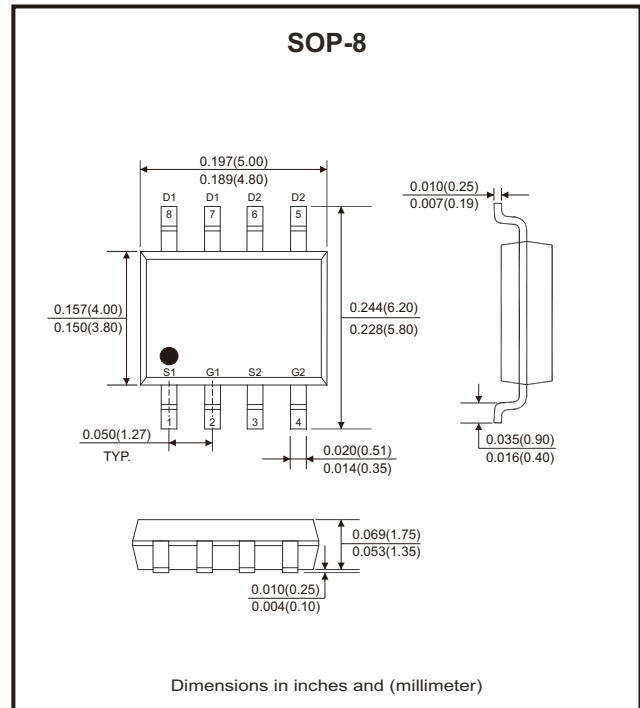
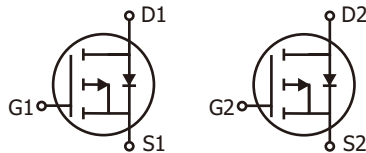
- Advanced high cell density trench technology.
- Super low gate charge.
- Excellent cdv/dt effect decline.
- Green device available.
- 100% EAS guaranteed.

Mechanical data

- Case: SOP-8 standard package, molded plastic.

Circuit Diagram

- G : Gate
- S : Source
- D : Drain



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

Parameter	Conditions	Symbol	Value	Unit
Drain-source voltage		V_{DS}	-30	V
Gate-source voltage		V_{GS}	± 20	V
Continuous drain current (Note 1)	$I_D @ T_A = 25^\circ\text{C}$		-6	A
	$I_D @ T_A = 70^\circ\text{C}$		-4.8	
Pulsed drain current (Note 2)		I_{DM}	-12	A
Total power dissipation (Note 4)	$P_D @ T_A = 25^\circ\text{C}$		1.5	W
Single pulse avalanche energy, $L=0.1\text{mH}$ (Note 3)		E_{AS}	18	mJ
Single pulse avalanche current, $L=0.1\text{mH}$ (Note 3)		I_{AS}	19	A
Operating junction temperature range		T_J	-55 to +150	$^\circ\text{C}$
Storage temperature range		T_{STG}	-55 to +150	$^\circ\text{C}$
Thermal resistance junction-ambient (Note 1)		$R_{\theta JA}$	83	$^\circ\text{C/W}$
Thermal resistance junction-case (Note 1)		$R_{\theta JC}$	50	$^\circ\text{C/W}$

Electrical Characteristics (at T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0		-2.5	V
Forward transconductance	g _{fs}	V _{DS} = -10V, I _D = -6A		6		S
Gate-source leakage current	I _{GSS}	V _{GS} = ±20V			±100	nA
Drain-source leakage current (T _J =25°C)	I _{DSS}	V _{DS} = -24V, V _{GS} = 0V			-1	μA
Drain-source leakage current (T _J =55°C)		V _{DS} = -24V, V _{GS} = 0V			-5	
Static drain-source on-resistance (Note 2)	R _{DS(on)}	V _{GS} = -10V, I _D = -5A			45	mΩ
		V _{GS} = -4.5V, I _D = -4A			82	
Total gate charge (Note 2)	Q _g	V _{DS} = -20V, I _D = -4A, V _{GS} = -4.5V		6.4		nC
Gate-source charge	Q _{gs}			2.2		
Gate-drain ("miller") charge	Q _{gd}			2.3		
Turn-on delay time (Note 2)	t _{d(on)}	V _{DS} = -12V, V _{GS} = -10V I _D = -4A, R _G = 3.3Ω		9		nS
Rise time	t _r			16.6		
Turn-off delay time	t _{d(off)}			21		
Fall time	t _f			21.6		
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		632		pF
Output capacitance	C _{oss}			100		
Reverse transfer capacitance	C _{rss}			74		
Source-drain diode						
Diode forward voltage (Note 2)	V _{SD}	V _{GS} = 0V, I _S = -1.7A, T _J =25°C		-0.84	-1.2	V
Continuous source current (Note 1,6)	I _S	V _G = V _D = 0V, Force current			-6	A
Pulsed source current (Note 2,6)	I _{SM}				-12	A
Guaranteed avalanche characteristics						
Single pulse avalanche energy (Note 5)	EAS	V _{DD} = -25V, L=0.1mH, I _{AS} = -10A	5			mJ

Notes: 1. Surface mounted on a 1inch² FR-4 board with 2oz copper.

2. The data tested by pulsed, pulse width ≤300μs, duty cycle ≤ 2%.

3. The EAS data shows max. rating. The test condition is V_{DD}=-25V, V_{GS}=-10V, L=0.1mH, I_{AS}=-19A.

4. The power dissipation is limited by 150°C junction temperature.

5. The min. value is 100% EAS tested guarantee.

6. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

Rating and Characteristic Curves (CMS06PP03Q8-HF)

Fig.1 - Typical Output Characteristics

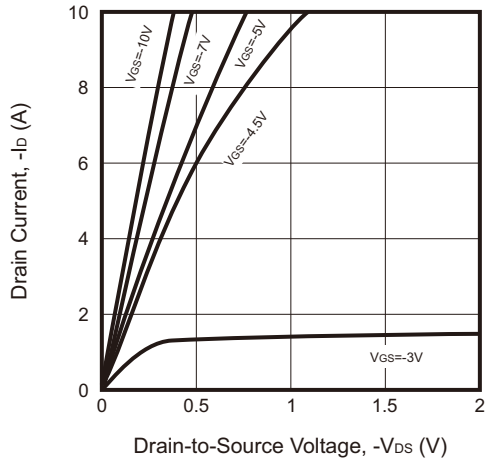


Fig.2 - On-Resistance vs. G-S Voltage

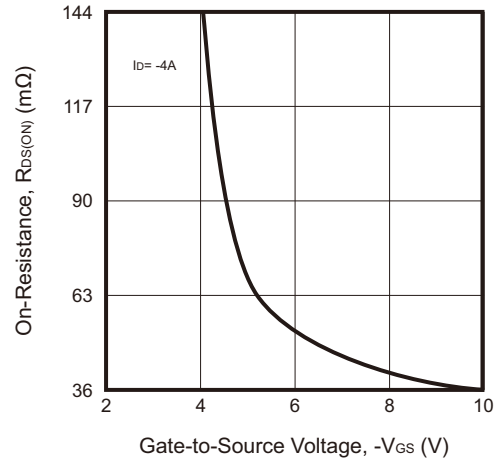


Fig.3 - Normalized $V_{GS(th)}$ vs. T_J

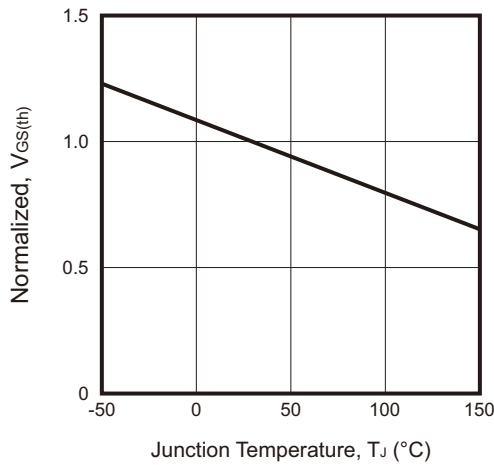


Fig.4 - Normalized $R_{DS(ON)}$ vs. T_J

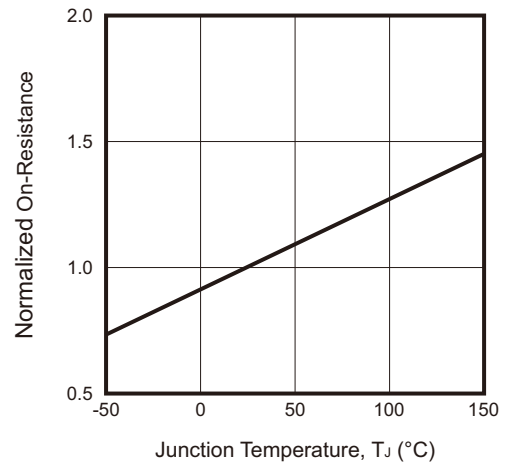


Fig.5 - Safe Operating Area

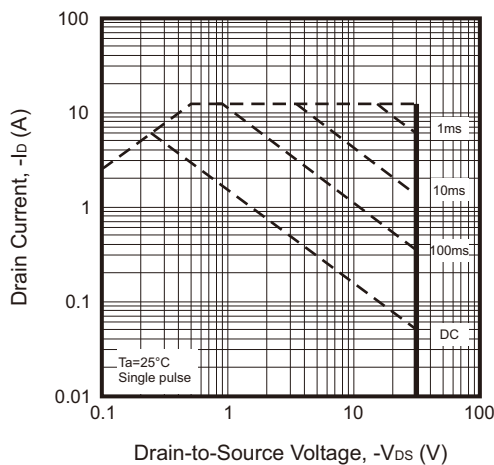
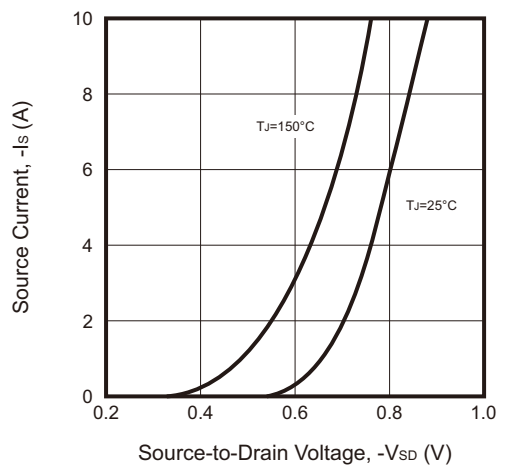


Fig.6 - Forward Characteristics of Reverse



Rating and Characteristic Curves (CMS06PP03Q8-HF)

Fig.7 - Gate Charge Characteristics

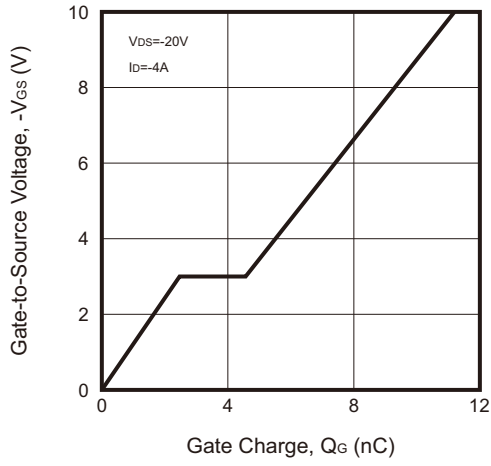
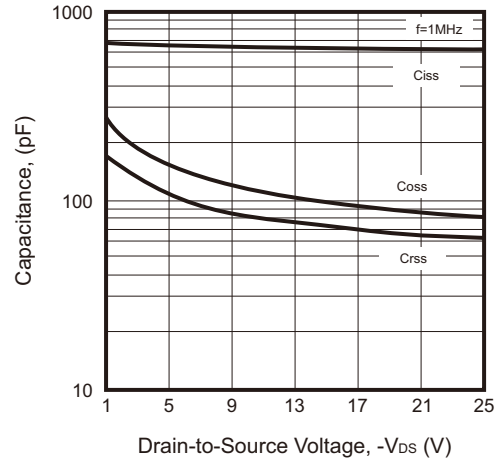
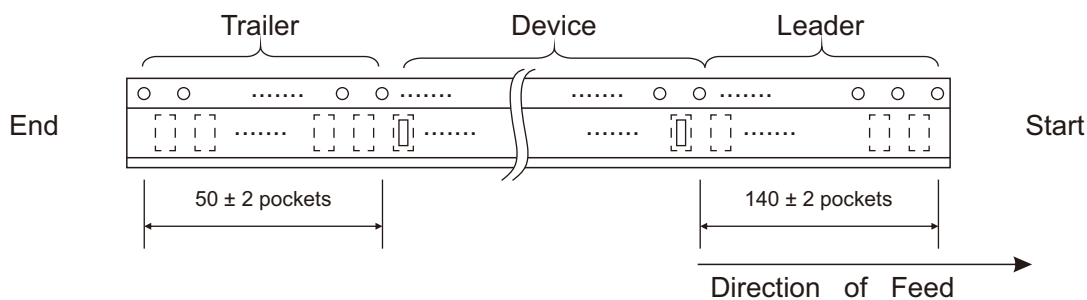
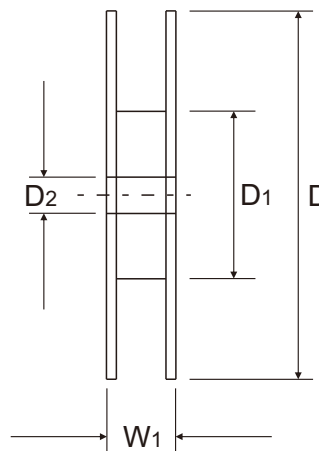
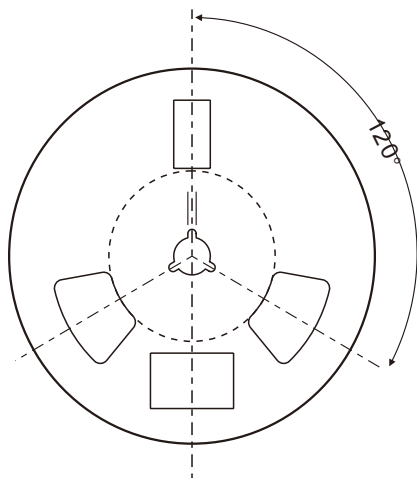
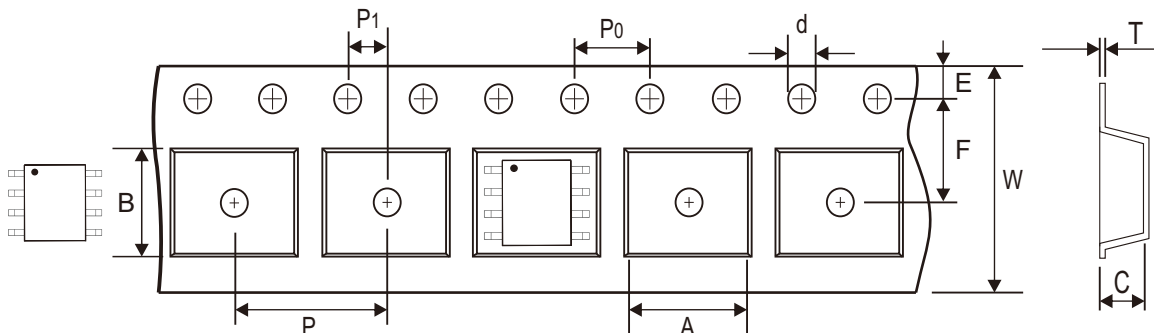


Fig.8 - Capacitance Characteristics



Reel Taping Specification



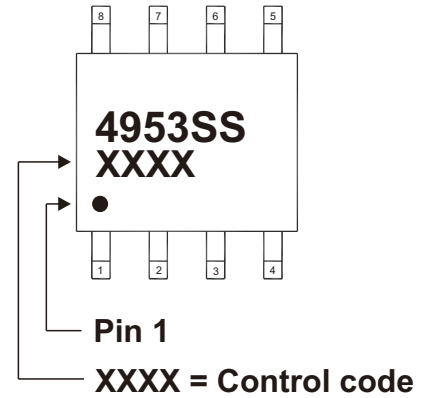
SOP-8	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	6.50 ± 0.10	5.30 ± 0.10	2.10 ± 0.10	1.50 + 0.10 - 0.00	330.00 ± 1.00	178.00 + 0.00 - 2.00	13.00 min.
	(inch)	0.256 ± 0.004	0.209 ± 0.004	0.083 ± 0.004	0.059 + 0.004 - 0.000	12.992 ± 0.039	7.008 + 0.000 - 0.079	0.512 min.

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	0.30 ± 0.05	12.00 ± 0.30	18.40 ref.
	(inch)	0.069 ± 0.004	0.217 ± 0.002	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.012 ± 0.002	0.472 ± 0.012	0.724 ref.

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

Marking Code

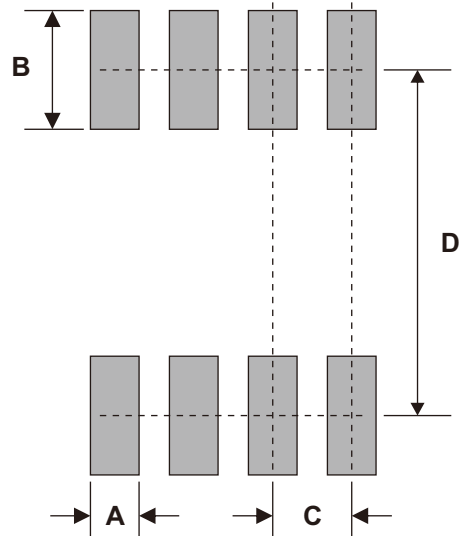
Part Number	Marking Code
CMS06PP03Q8-HF	4953SS



Suggested PAD Layout

SIZE	SOP-8	
	(mm)	(inch)
A	0.65	0.026
B	1.75	0.069
C	1.27	0.050
D	5.60	0.220

Note: 1. The pad layout is for reference purposes only.



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOP-8	3000	13