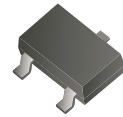


CMS03N06T-HF

N-Channel
RoHS Device
Halogen Free



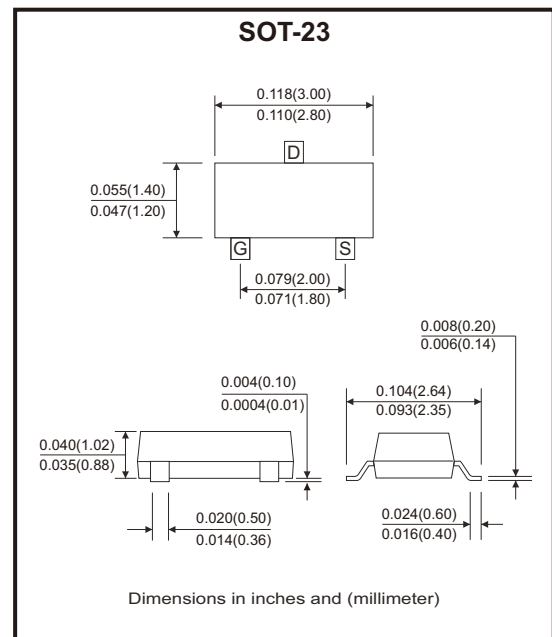
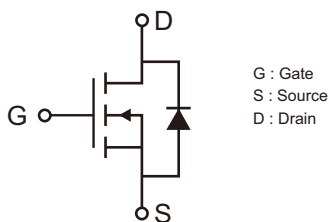
Features

- High power and current handling capability.
- Surface mount package.

Mechanical data

- Case: SOT-23, molded plastic.
- Mounting position: Any.

Circuit Diagram



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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	60	V
Gate-source voltage	V_{GS}	± 20	V
Drain current-continuous	I_D	3	A
Drain current-pulsed (Note 1)	I_{DM}	10	A
Maximum power dissipation	P_D	1.7	W
Thermal resistance junction to ambient (Note 2)	$R_{\theta JA}$	73.5	°C/W
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

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

2. Surface mounted on FR4 board, $t \leq 10$ sec.

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	BV _{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 (Note 1)						
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	1.3	2.0	V
Drain-source on-state resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 3A		78	105	mΩ
		V _{GS} = 4.5V, I _D = 1.5A		95	125	
Forward transconductance	g _{FS}	V _{DS} = 15V, I _D = 2A		3		S
Dynamic characteristics (Note 2)						
Input capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		510		pF
Output capacitance	C _{oss}			34		
Reverse transfer capacitance	C _{rss}			26		
Switching characteristics (Note 2)						
Turn-on delay time	t _{d(on)}	V _{DD} = 30V, I _D = 1.5A V _{GS} = 10V, R _{GEN} = 1Ω		6		ns
Turn-on rise time	t _r			15		
Turn-off delay time	t _{d(off)}			15		
Turn-off fall time	t _f			10		
Total gate charge	Q _g	V _{DS} = 30V, I _D = 3A, V _{GS} = 10V		14.6		nC
Gate-source charge	Q _{gs}			1.6		
Gate-drain charge	Q _{gd}			3		
Drain-source diode characteristics						
Diode forward voltage (Note 1)	V _{SD}	V _{GS} = 0V, I _S = 3A			1.2	V
Diode forward current (Note 3)	I _S				3	A

Notes: 1. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

2. Guaranteed by design, not subject to production.

3. Surface mounted on FR4 board, $t \leq 10$ sec.

Rating and Characteristic Curves (CMS03N06T-HF)

Fig.1 - Power Dissipation

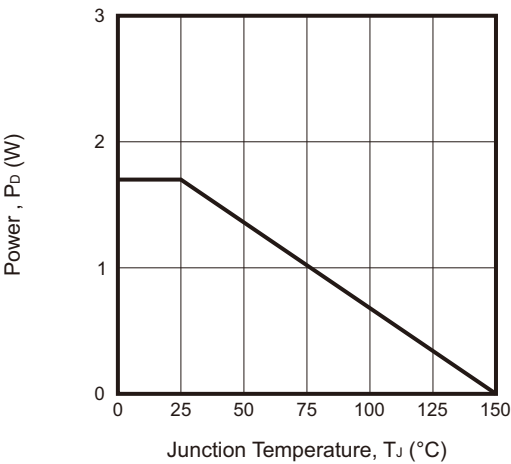


Fig.2 - Drain Current

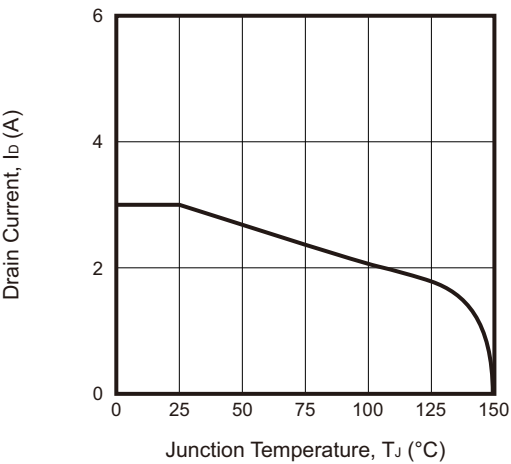


Fig.3 - Output Characteristics

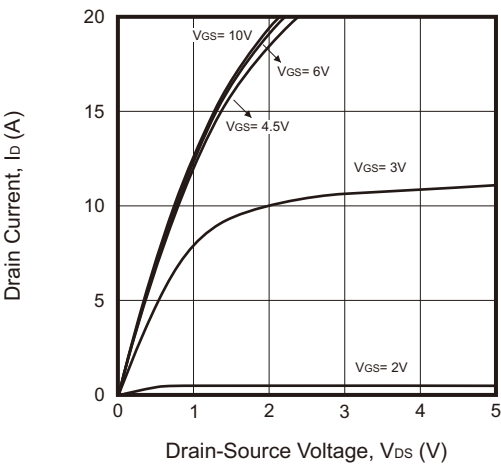


Fig.4 - Drain-Source on Resistance

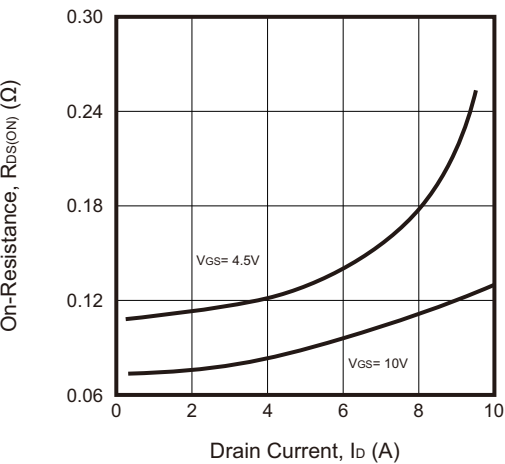


Fig.5 - Transfer Characteristics

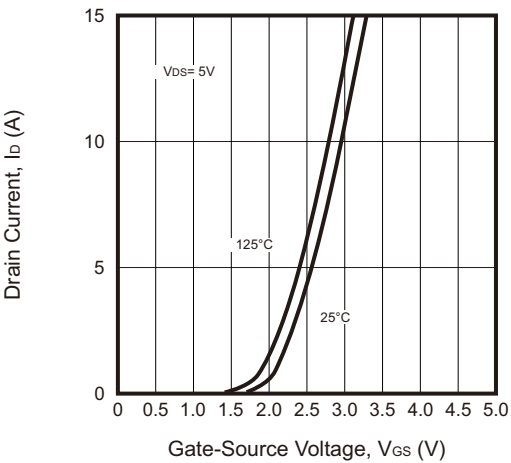
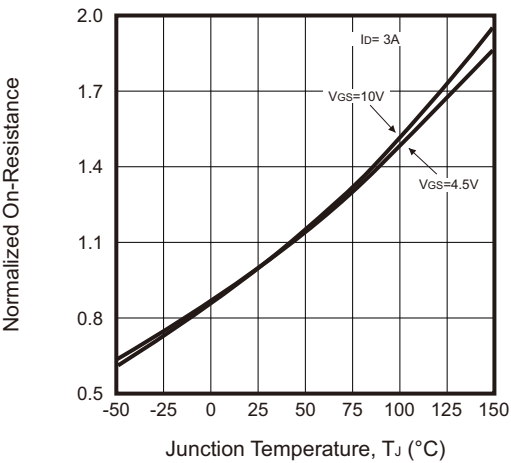


Fig.6 - Drain-Source on Resistance



Rating and Characteristic Curves (CMS03N06T-HF)

Fig.7 - $R_{DS(ON)}$ vs V_{GS}

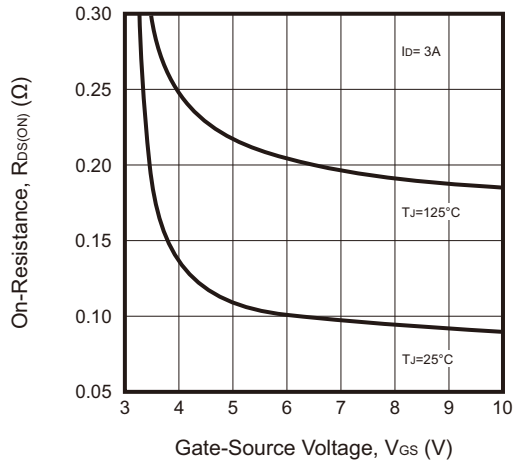


Fig.8 - Capacitance vs V_{DS}

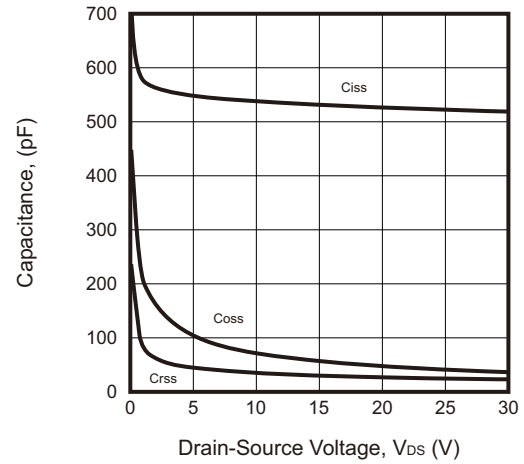


Fig.9 - Gate Charge

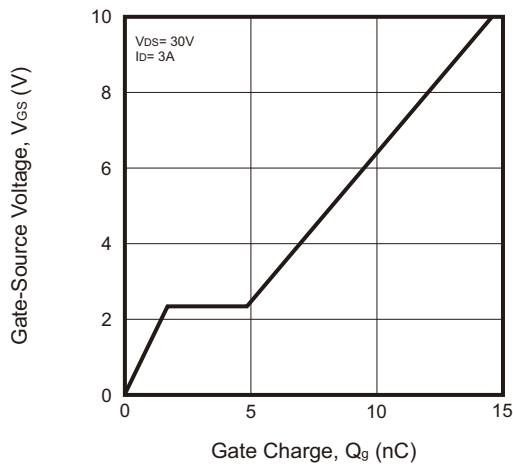


Fig.10 - Source-Drain Diode Forward

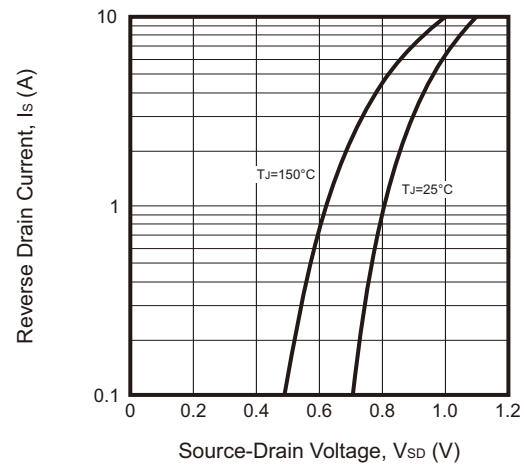
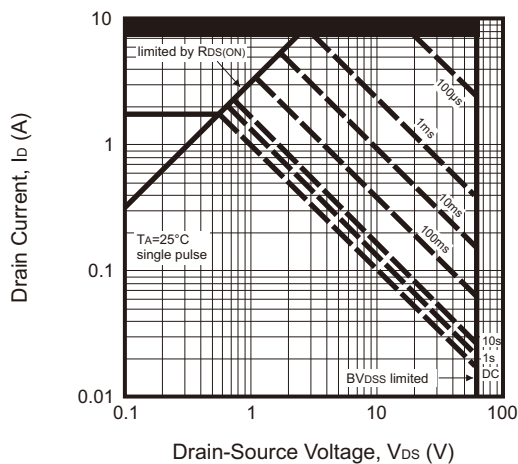
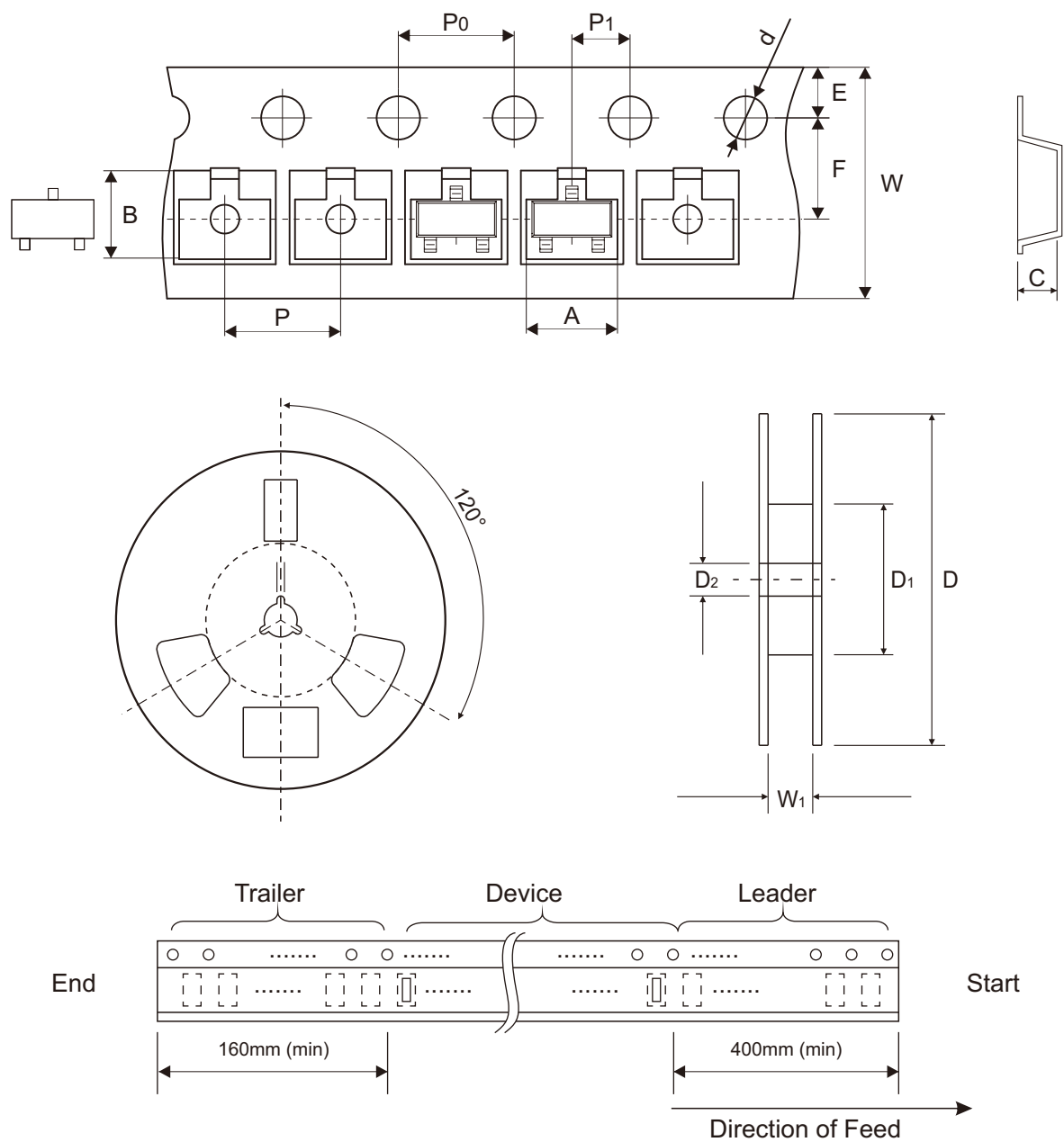


Fig.11 - Safe Operation Area



Reel Taping Specification

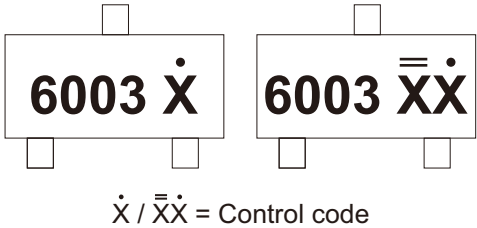


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 + 0.10 - 0.00	178.00 ± 2.00	50.00 ± 0.50	13.00 ± 0.25
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 + 0.004 - 0.000	7.008 ± 0.079	1.969 ± 0.020	0.512 ± 0.010

SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 - 0.10	9.50 ± 1.50
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 - 0.004	0.374 ± 0.059

Marking Code

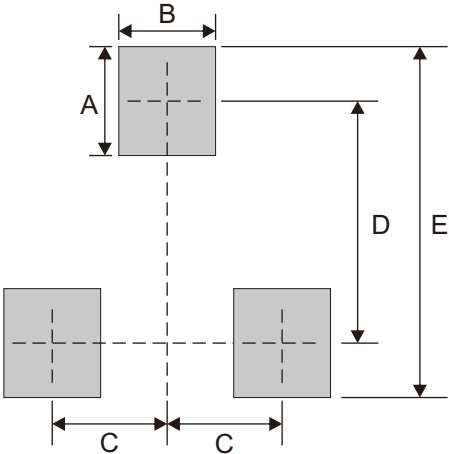
Part Number	Marking Code
CMS03N06T-HF	6003



Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114

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



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7