

CMSQ03CN2N7002K-HF

N-Channel
RoHS Device
Halogen Free



Features

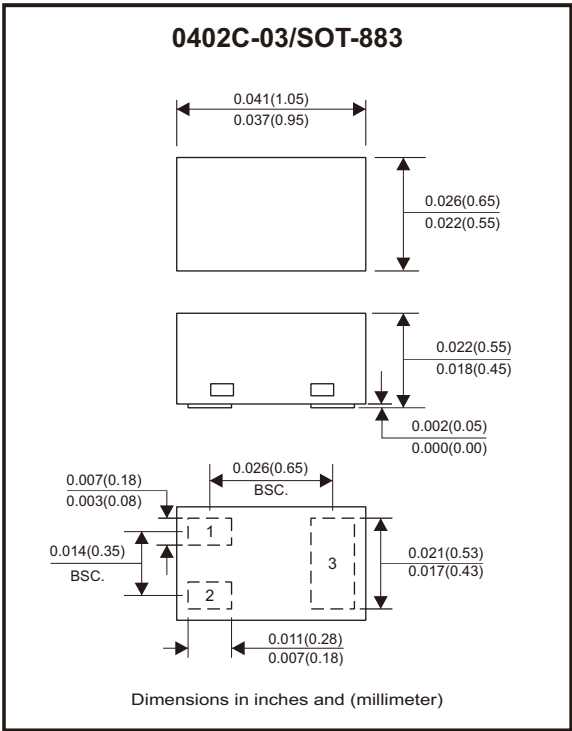
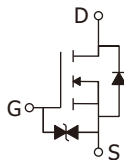
- Surface mount package.
- Reliable and rugged.
- ESD protection.

Mechanical data

- Case: 0402C-03/SOT-883 package, molded plastic.
- Mounting position: Any.

Circuit Diagram

- 1 : Gate
- 2 : Source
- 3 : Drain



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	300	mA
Power dissipation	P_D	400	mW
Thermal resistance, junction to ambient @ $T_A=25^{\circ}\text{C}$	$R_{\theta JA}$	260	$^{\circ}\text{C/W}$
Operating junction and storage temperature range	T_J, 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 Electrical Characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$			1	μA
Gate leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 10	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.1		2.3	V
Drain source on-state resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 250mA$		1.6	2.2	Ω
		$V_{GS} = 4.5V, I_D = 250mA$		1.7	3.0	
Drain forward voltage	V_{SD}	$V_{GS} = 0V, I_S = 150mA$	0.4		1.2	V
Forward transconductance	g_{FS}	$V_{DS} = 10V, I_D = 200mA$			1.2	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$		22		pF
Output capacitance	C_{oss}			6		
Reverse transfer capacitance	C_{rss}			3		

Typical Rating and Characteristic Curves (CMSQ03CN2N7002K-HF)

Fig.1 - On-Region Characteristics

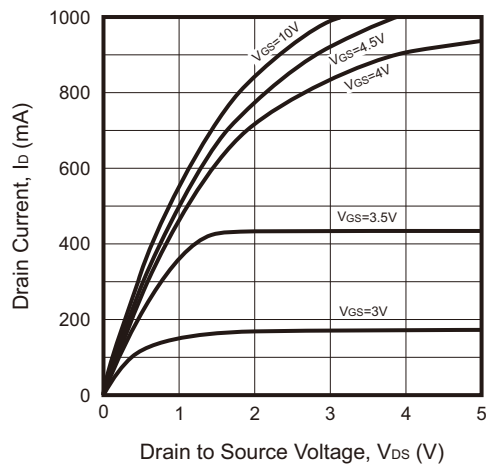


Fig.2 - Transfer Characteristics

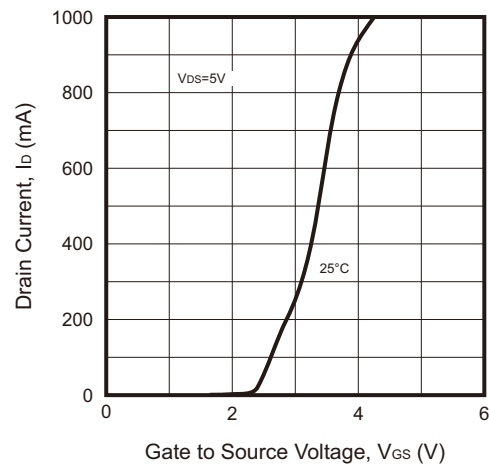


Fig.3 - On-Resistance vs. Drain Current Gate Voltage

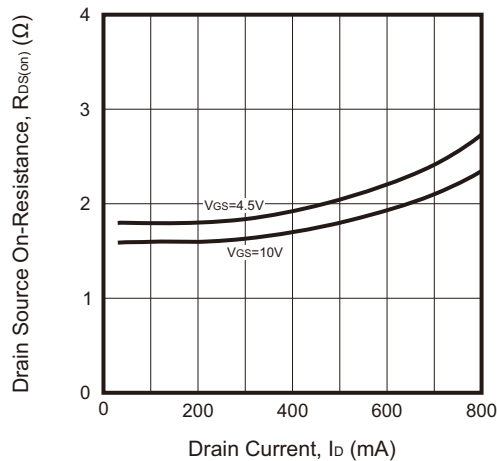


Fig.4 - On-Resistance Variation with Temperature

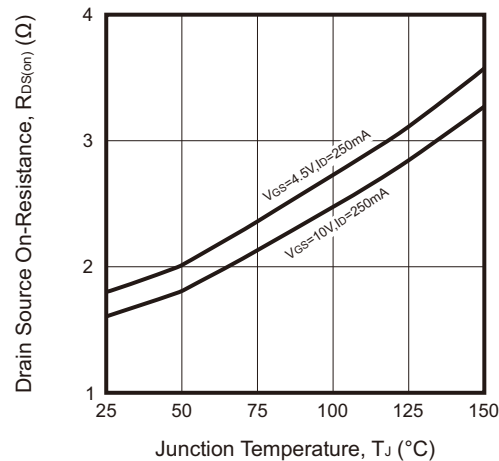


Fig.5 - On-Resistance vs. Gate Source Voltage

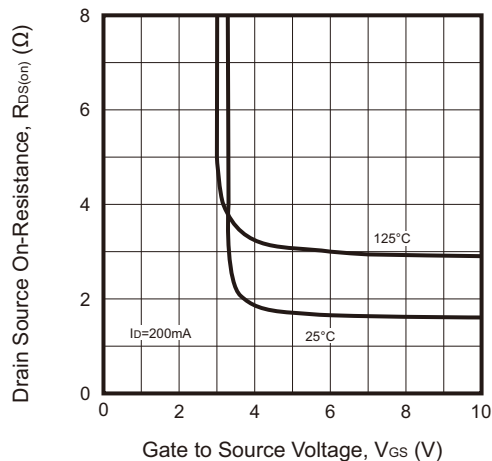
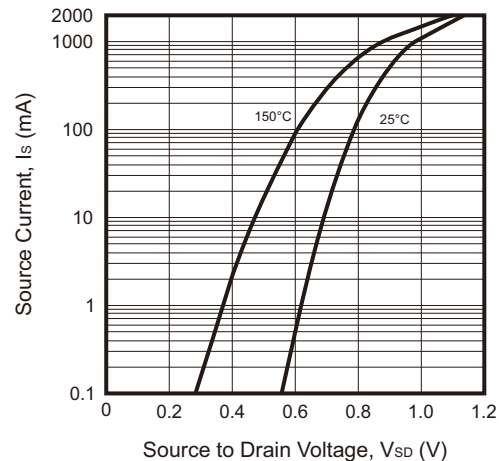


Fig.6 - Diode Forward Voltage vs. Current



Typical Rating and Characteristic Curves (CMSQ03CN2N7002K-HF)

Fig.7 - Gate Threshold Variation
vs. Ambient Temperature

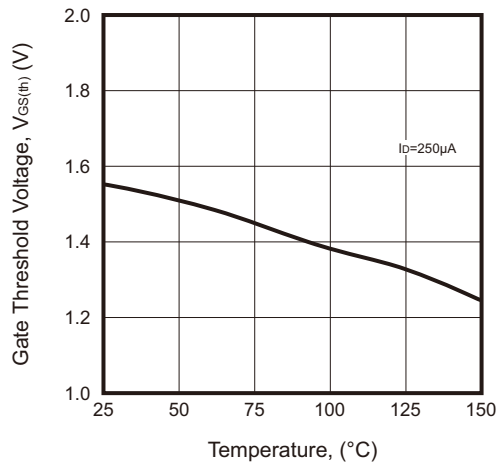


Fig.8 - Breakdown Voltage vs. Temperature

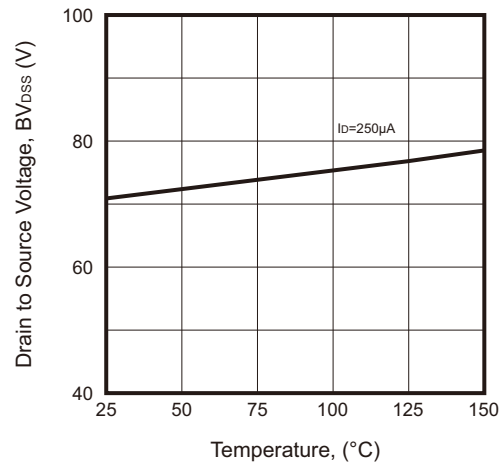
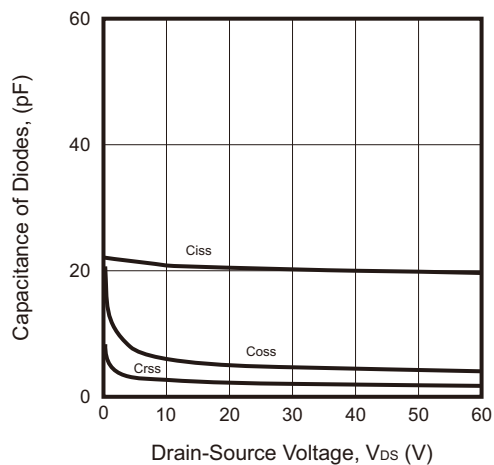
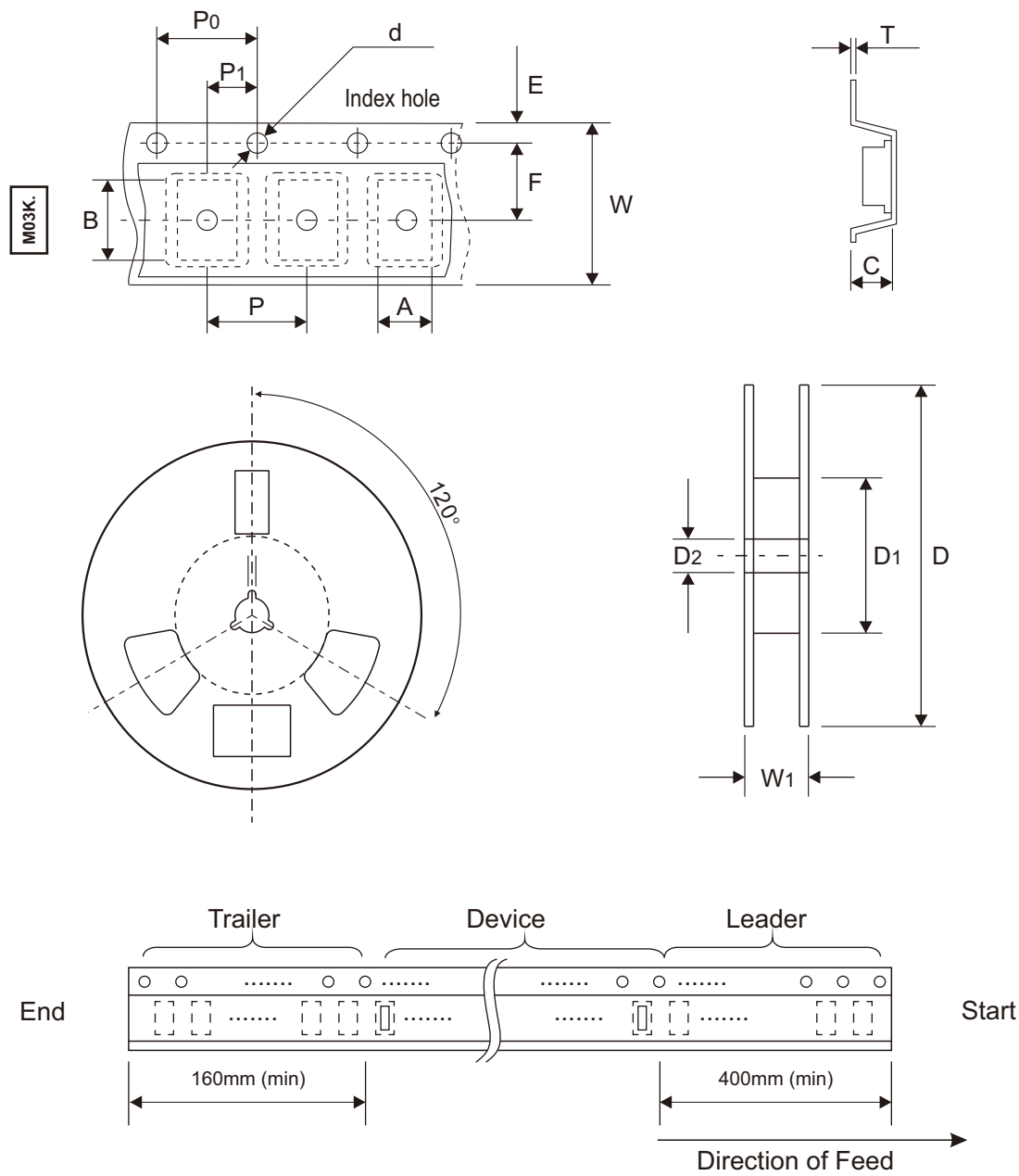


Fig.9 - Capacitance of Diodes



Reel Taping Specification



0402C-03 (SOT-883)	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	0.75 ± 0.05	1.17 ± 0.05	0.65 ± 0.05	1.50 + 0.10 - 0.00	178.00 ± 1.00	60.00 ± 0.50	13.50 ± 0.20
	(inch)	0.030 ± 0.002	0.046 ± 0.002	0.026 ± 0.002	0.059 + 0.004 - 0.000	7.008 ± 0.039	2.362 ± 0.020	0.531 ± 0.008

0402C-03 (SOT-883)	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	0.20 + 0.02 - 0.05	8.00 ± 0.20	12.00 + 0.50 - 0.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.008 + 0.001 - 0.002	0.315 ± 0.008	0.472 + 0.020 - 0.000

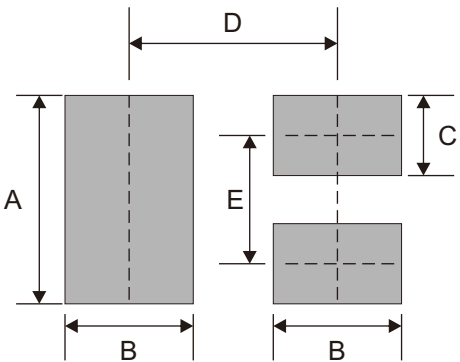
Marking Code

Part Number	Marking Code
CMSQ03CN2N7002K-HF	M03K.



Suggested P.C.B. PAD Layout

SIZE	0402C-03 (SOT-883)	
	(mm)	(inch)
A	0.65	0.026
B	0.40	0.016
C	0.25	0.010
D	0.65	0.026
E	0.40	0.016



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
0402C-03 (SOT-883)	5,000	7