

General Description

The CMS65N03 uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is suitable for use as a synchronous switch in PWM applications.

Features

- Low On-Resistance
- Simple Drive Requirements
- Surface mount package
- RoHS Compliant

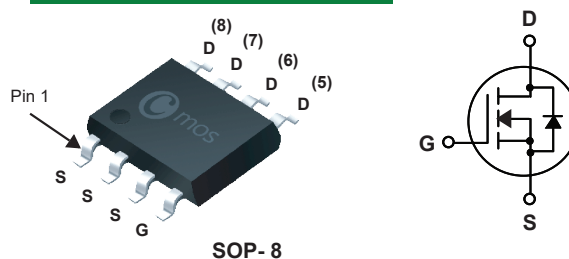
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
30V	8mΩ	13A

Applications

- DC/DC Converter
- Synchronous Rectifier
- Load Switch
- Battery protection

SOP-8 Pin Configuration



Type	Package	Marking
CMS65N03	SOP- 8	CMS65N03

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_A=25^{\circ}\text{C}$	Continuous Drain Current	13	A
$I_D@T_A=70^{\circ}\text{C}$	Continuous Drain Current	11	A
I_{DM}	Pulsed Drain Current	52	A
EAS	Single Pulse Avalanche Energy ¹	120	mJ
$P_D@T_A=25^{\circ}\text{C}$	Total Power Dissipation	2.5	W
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ²	---	50	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	25	$^{\circ}\text{C}/\text{W}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=12A$	---	7	8	mΩ
		$V_{GS}=4.5V$, $I_D=8A$	---	10	12	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=24V$, $V_{GS}=0V$	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=8A$	---	16	---	S
Q_g	Total Gate Charge	$V_{DD}=15V$, $I_D=16A$ $V_{GS}=0$ to $4.5V$	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	6.5	---	
Q_{gd}	Gate-Drain Charge		---	3.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$, $V_{GS}=4.5V$, $I_D=16A$ $R_G=1.6\Omega$	---	12.5	---	ns
T_r	Rise Time		---	6.5	---	
$T_{d(off)}$	Turn-Off Delay Time		---	15.5	---	
T_f	Fall Time		---	6.5	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	1400	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	130	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	13	A
I_{SM}	Pulsed Source Current		---	---	52	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=12A$, $T_J=25^{\circ}\text{C}$	---	0.84	1.2	V

Note :

1.The test condition is $V_{DD}=15V$, $V_{GS}=10V$, $L=0.5mH$, $I_{AS}=22A$.

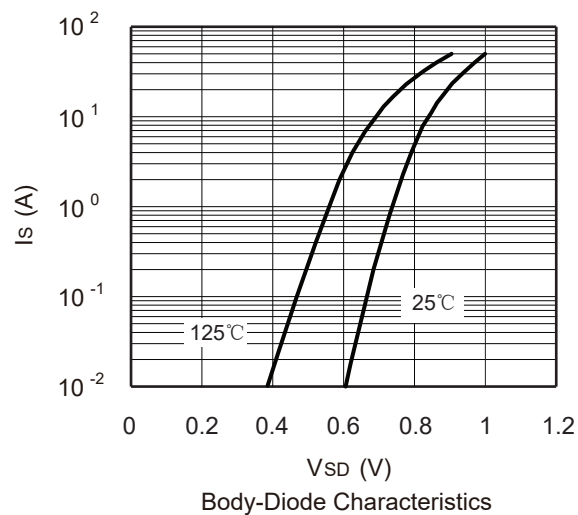
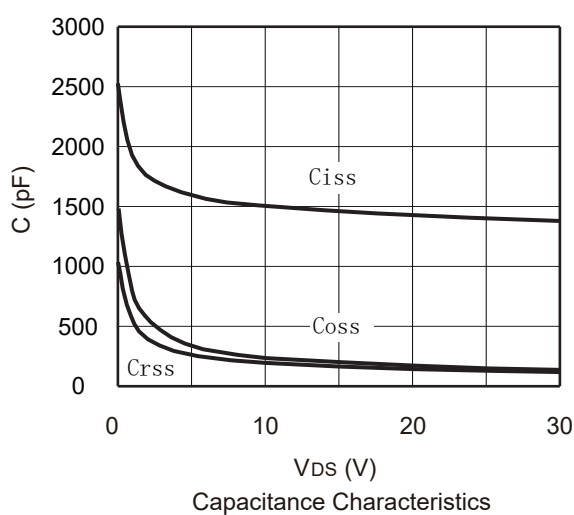
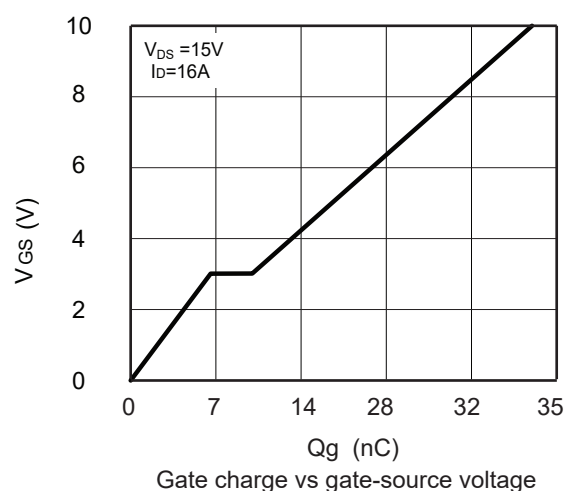
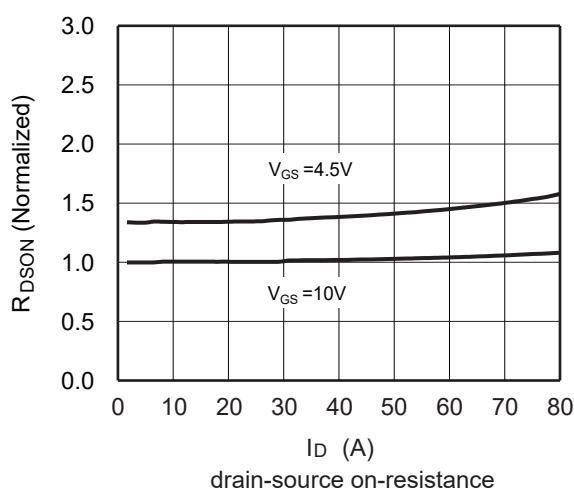
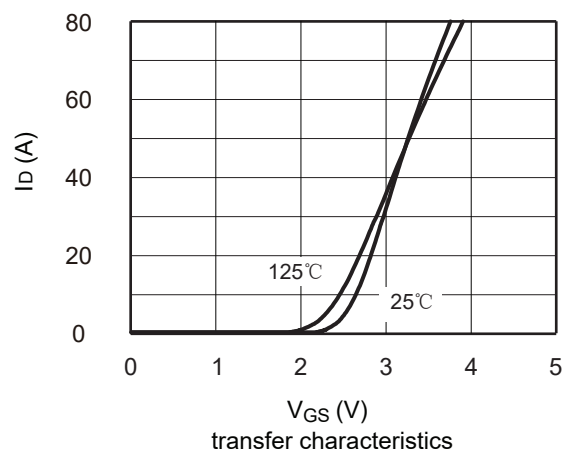
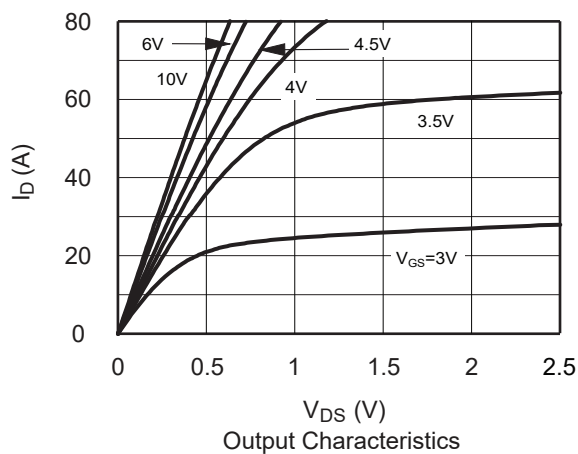
2.The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper. The value in any given application depends on the user's specific board design.

This product has been designed and qualified for the consumer market.

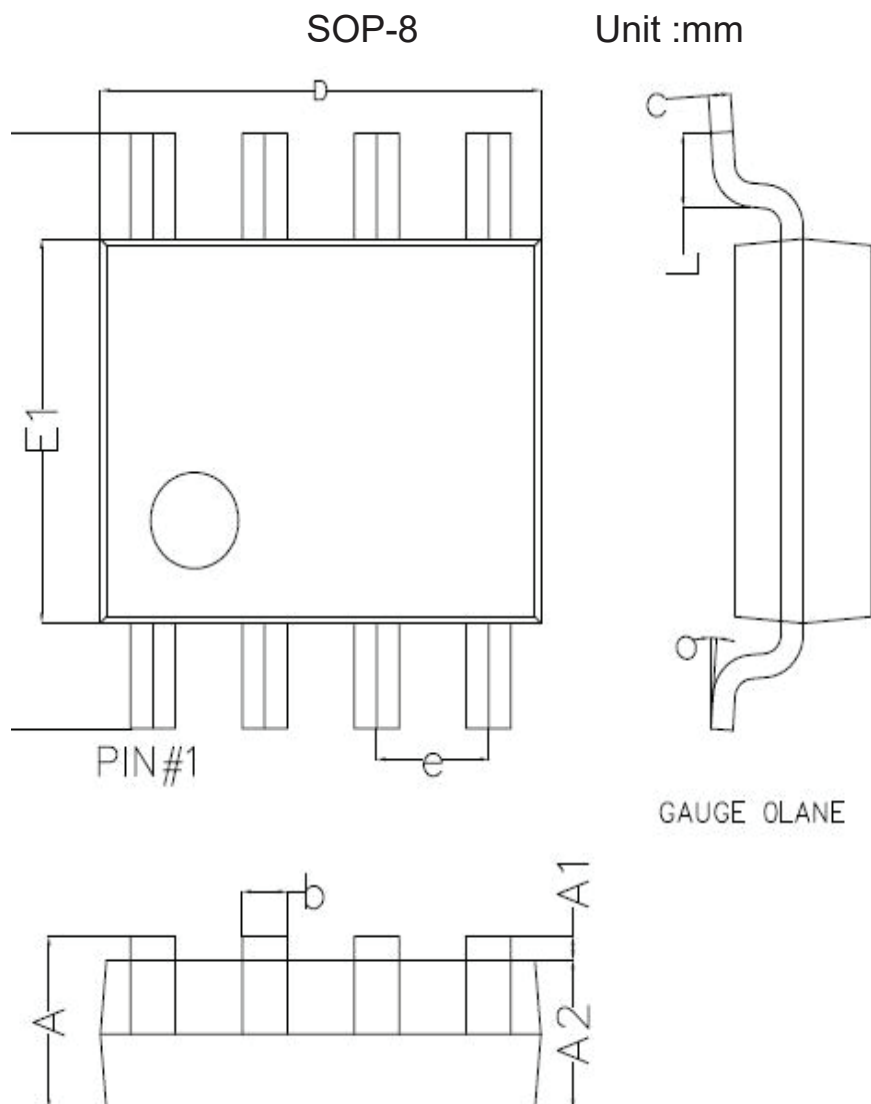
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Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

Typical Characteristics



Package Dimension



Symbol	Dim in mm		
	Min	Nor	Max
A	1.35	1.55	1.75
A1	0.02	0.065	0.10
A2	1.35	1.45	1.55
b	0.33	0.42	0.51
c	0.17	0.21	0.25
D	4.80	4.90	5.00
e	1.270 (BSC)		
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
L	0.4	0.835	1.27
θ	0°	4°	8°