

General Description

The CMS15P02 uses advanced trench technology to provide excellent $R_{DS(ON)}$. These devices are well suited for low voltage and battery powered applications where low in-line power loss and fast switching are required.

Features

- P-Channel MOSFET
- Low ON-resistance
- 100% avalanche tested
- RoHS Compliant

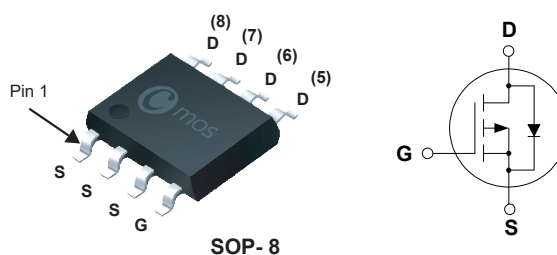
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
-20V	6.6mΩ	-15A

Applications

- Load switch
- Power management

SOP-8 Pin Configuration



Type	Package	Marking
CMS15P02	SOP- 8	CMS15P02

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current	-15	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current	-11.5	A
I_{DM}	Pulsed Drain Current	-60	A
EAS	Single Pulse Avalanche Energy ¹	138	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	150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	50	$^\circ\text{C/W}$
$R_{\theta JL}$	Thermal Resistance-Junction to Foot(Steady State)	---	19	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V$, $I_D=-10A$	---	5.7	6.6	mΩ
		$V_{GS}=-2.5V$, $I_D=-10A$	---	7.7	10	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = -250\mu A$	-0.5	---	-1.2	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-16V$, $V_{GS} = 0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-10A$	---	35	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	13	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-10V$, $I_D=-14A$ $V_{GS}=-4.5V$ (Note 2)	---	53	---	nC
Q_{gs}	Gate-Source Charge		---	9.5	---	
Q_{gd}	Gate-Drain Charge		---	18	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-10V$, $V_{GS} = -4.5V$ $I_D = -14A$, $R_{GEN} = 6\Omega$ (Note 2)	---	25	---	ns
T_r	Rise Time		---	50	---	
$T_{d(off)}$	Turn-Off Delay Time		---	95	---	
T_f	Fall Time		---	80	---	
C_{iss}	Input Capacitance	$V_{DS}=-20V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	5100	---	pF
C_{oss}	Output Capacitance		---	570	---	
C_{rss}	Reverse Transfer Capacitance		---	400	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-15	A
I_{SM}	Pulsed Source Current		---	---	-60	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-15A$, $T_J=25^{\circ}\text{C}$	---	-0.82	-1.2	V

Note :

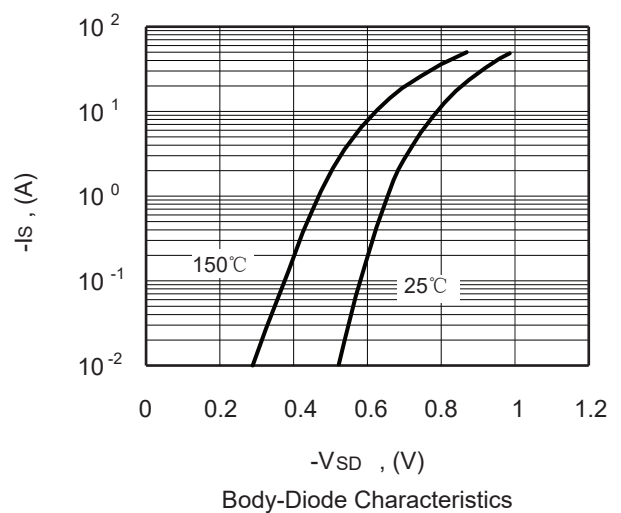
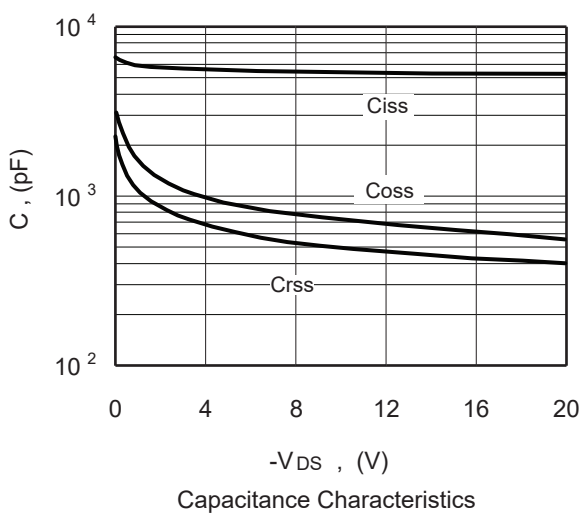
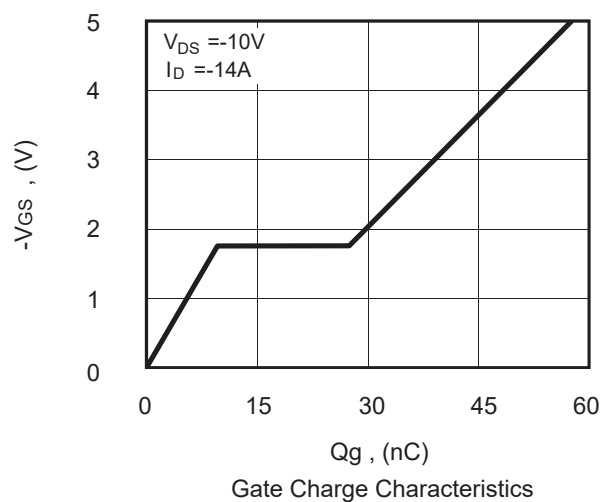
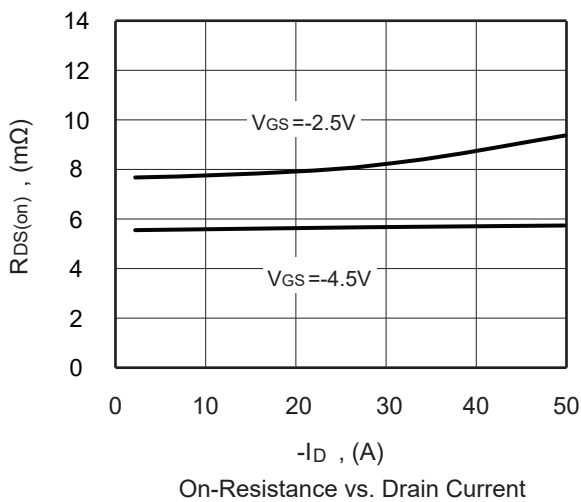
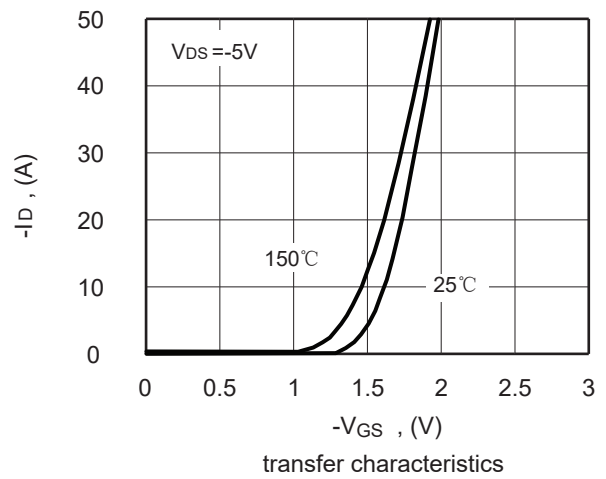
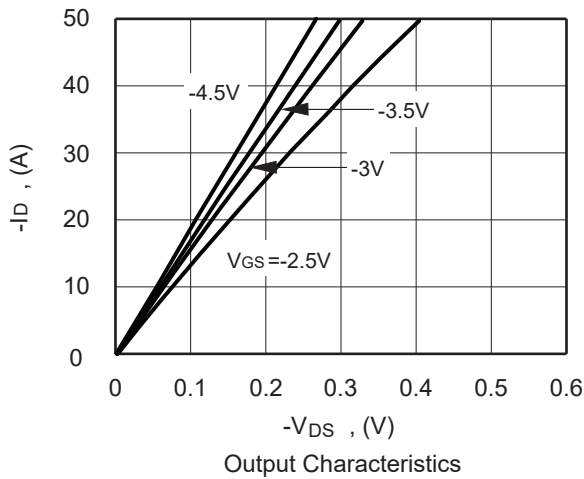
1. The EAS data shows Max. rating . The test condition is $V_{DD}=-20V$, $V_{GS}=-10V$, $L=0.5\text{mH}$, $I_{AS}=-23.5A$.
2. Defined by design, not subject to production.

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

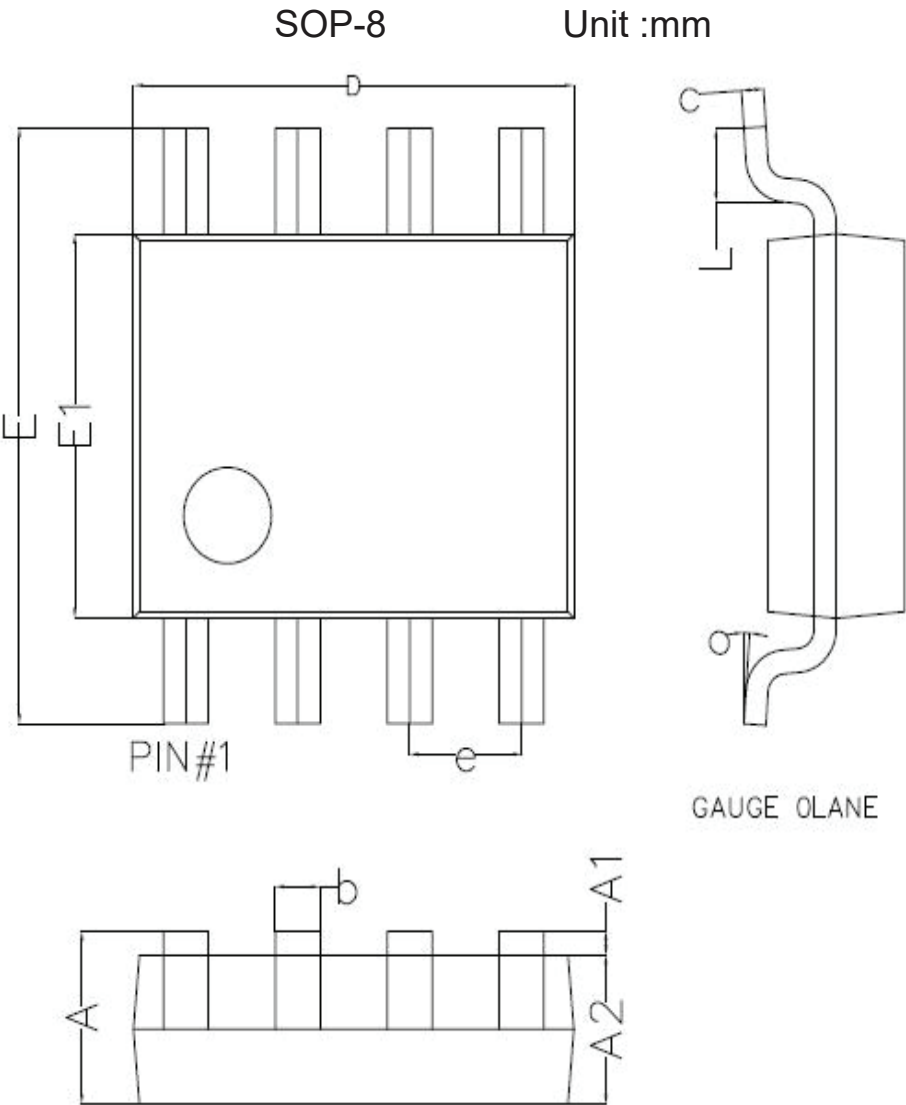
Cmos assumes no liability for customers' product design or applications.

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°