

General Description

The CMS4454 uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

- Low On-Resistance
- Simple Drive Requirements
- RoHS Compliant

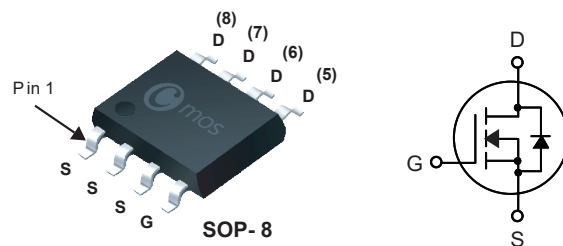
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	40mΩ	6.5A

Applications

- DC-DC convertors
- Computer motherboards

SOP-8 Pin Configuration



Type	Package	Marking
CMS4454	SOP-8	CMS4454

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_A=25^{\circ}C$	Continuous Drain Current	6.5	A
$I_D@T_A=70^{\circ}C$	Continuous Drain Current	5.3	A
I_{DM}	Pulsed Drain Current	46	A
EAS	Single Pulse Avalanche Energy ¹	200	mJ
$P_D@T_A=25^{\circ}C$	Total Power Dissipation	3.1	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient($t \leq 10s$)	---	40	°C/W
$R_{\theta JL}$	Thermal Resistance Junction-Lead(Steady-State)	---	24	°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	$V_{GS}=0V$, $I_D=250\mu A$	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=6.5A$	---	34	40	mΩ
		$V_{GS}=4.5V$, $I_D=6.5A$	---	35	45	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1.0	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=80V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=6.5A$	---	20	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1.5	---	Ω
Q_g	Total Gate Charge	$I_D=6.5A$	---	60	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=50V$	---	9	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	13	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=50V$	---	10	---	ns
T_r	Rise Time	$V_{GS}=10V$	---	26	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_{G_{ext}}=2.7\Omega$	---	44	---	
T_f	Fall Time	$I_D=6.5A$	---	55	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2600	---	pF
C_{oss}	Output Capacitance		---	130	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	6.5	A
I_{SM}	Pulsed Source Current		---	---	26	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=6.5A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

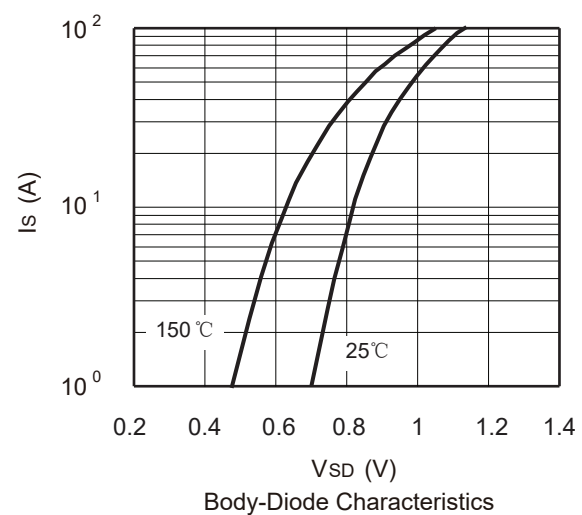
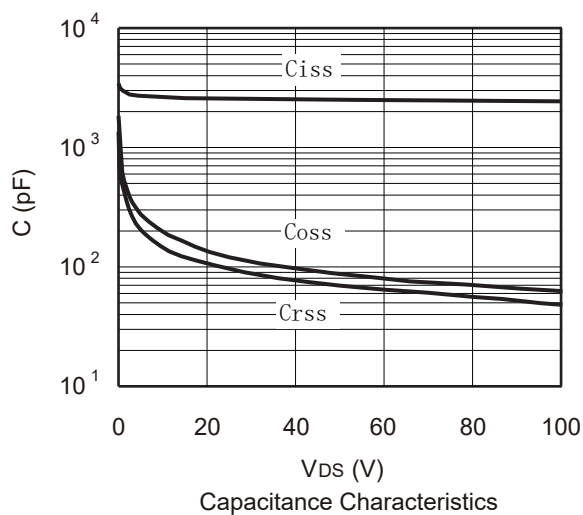
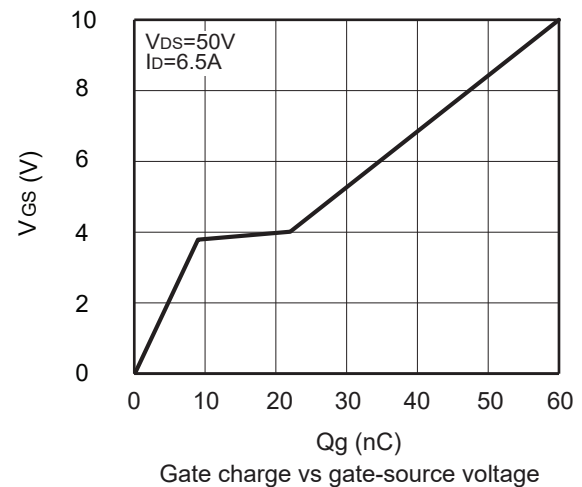
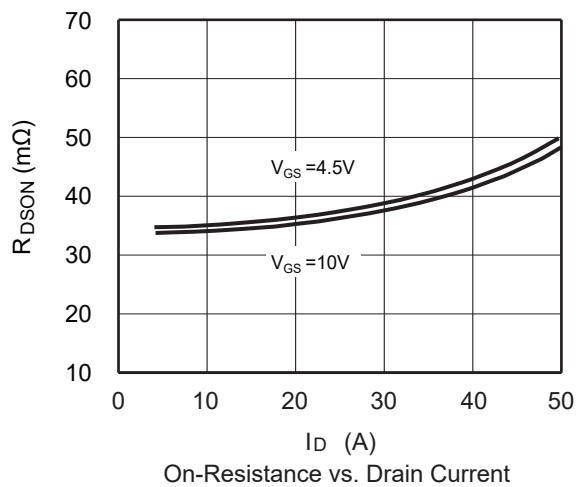
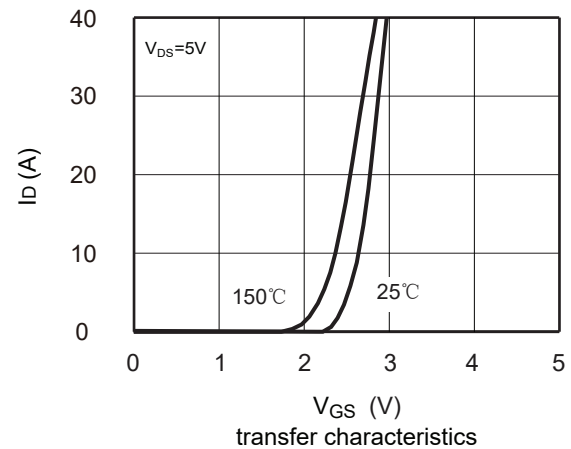
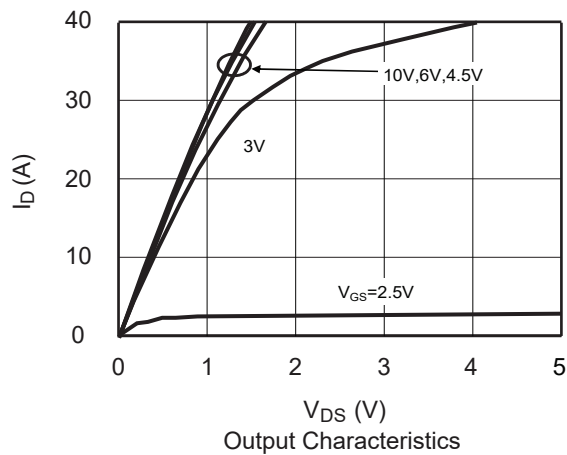
1.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=20A$.

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.

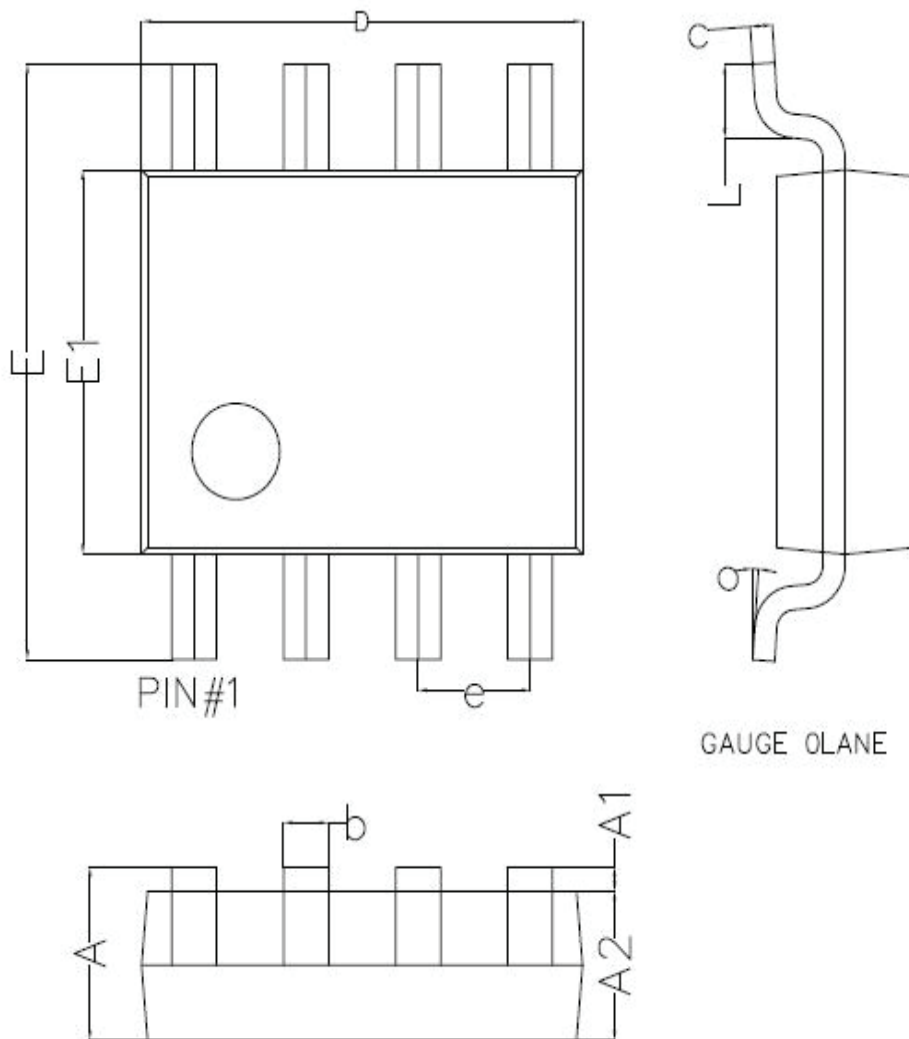
Typical Characteristics



Package Dimension

SOP-8

Unit :mm



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°