

General Description

The CMS4576B uses advanced SGT technology to provide excellent $R_{DS(ON)}$. This device is suitable for use as a synchronous switch in PWM applications.

Features

- Low On-Resistance
- Surface mount package.
- RoHS Compliant

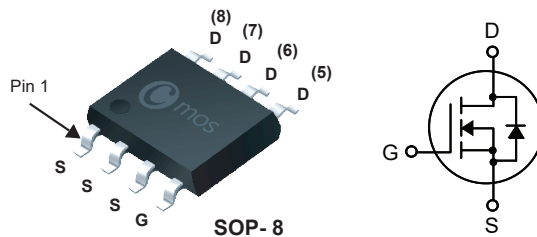
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
30V	7.8mΩ	20A

Applications

- DC/DC Converter
- Synchronous Rectifier

SOP-8 Pin Configuration



Type	Package	Marking
CMS4576B	SOP-8	CMS4576B

Absolute Maximum Ratings

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	20	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current	12	A
I_{DM}	Pulsed Drain Current	80	A
EAS	Single Pulse Avalanche Energy ¹	60	mJ
$P_D@T_A=25^\circ\text{C}$	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°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =20A	---	6.8	7.8	mΩ
		V _{GS} =4.5V, I _D =20A	---	8.9	11	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1	---	2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =30V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =30V, V _{GS} =0V, T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =5A	---	12	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	2.0	---	Ω
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =0 to 4.5V I _D =30A	---	8.7	---	nC
Q _{gs}	Gate-Source Charge		---	4.6	---	
Q _{gd}	Gate-Drain Charge		---	2.1	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =15V, V _{GS} =10V, R _G =1.6Ω I _D =30A	---	5	---	ns
T _r	Rise Time		---	4	---	
T _{d(off)}	Turn-Off Delay Time		---	17	---	
T _f	Fall Time		---	3	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	650	---	pF
C _{oss}	Output Capacitance		---	250	---	
C _{rss}	Reverse Transfer Capacitance		---	25	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	20	A
I _{SM}	Pulsed Source Current		---	---	80	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =15A, T _J =25°C	---	0.86	1.2	V

Note :

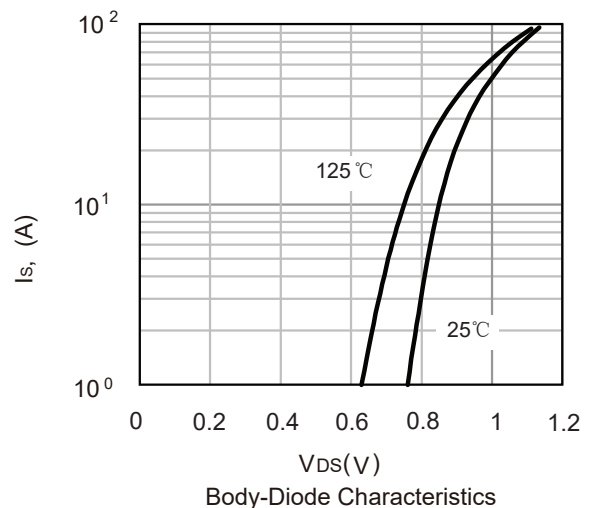
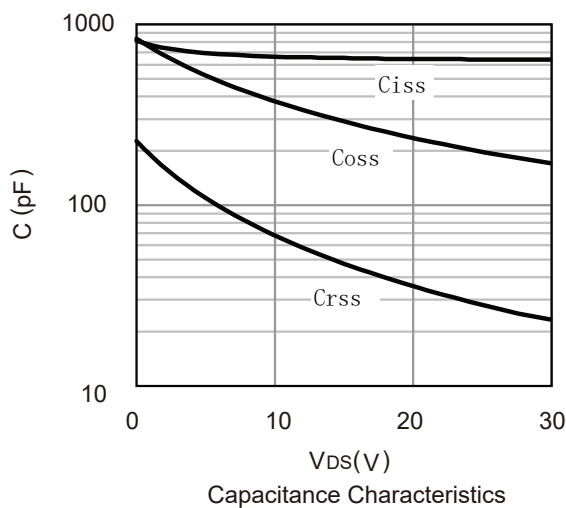
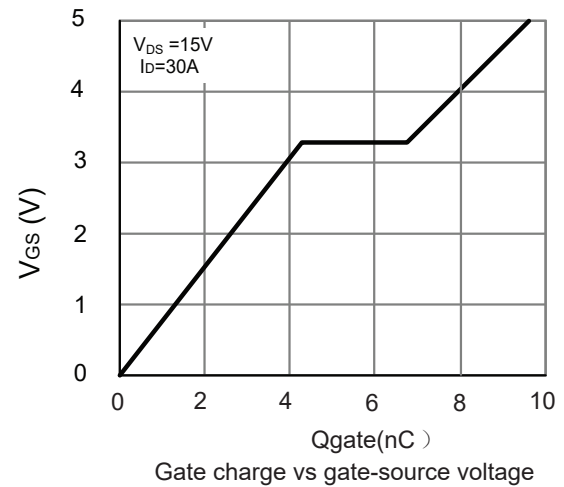
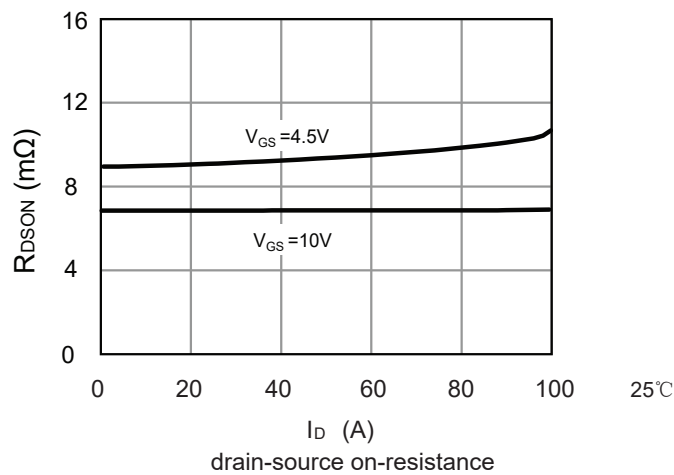
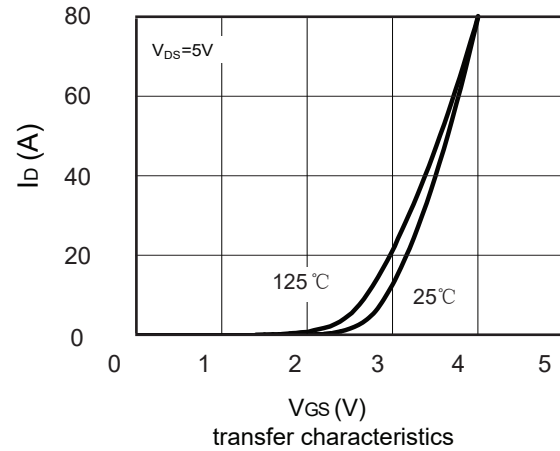
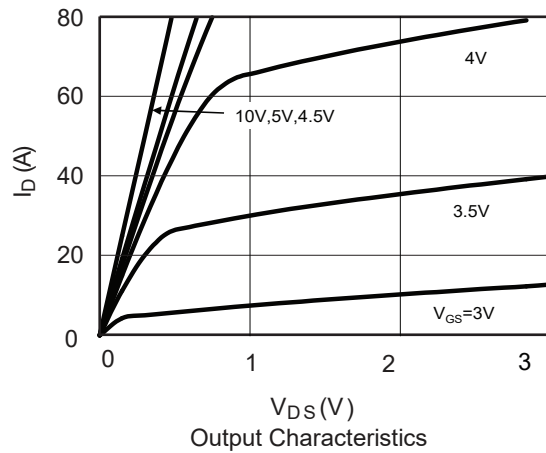
1.The EAS data shows Max. rating . The test condition is V_{DD}=25V, V_{GS}=10V, L=1mH, I_{AS}=11A.

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.

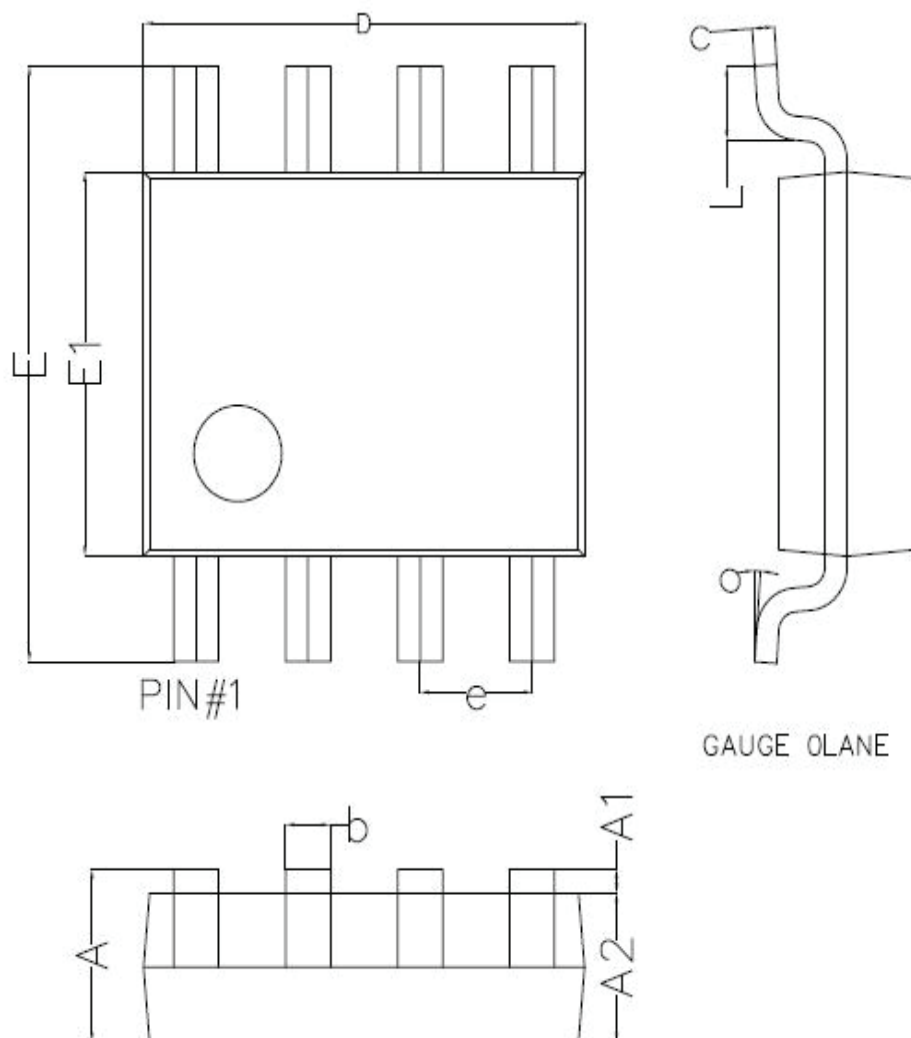
Typical Characteristics



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°