

General Description

These P-Channel enhancement mode power field effect transistors use advanced trench technology and design to provide excellent RDS(ON) . This device is suitable for use as a load switch and battery protection applications.

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

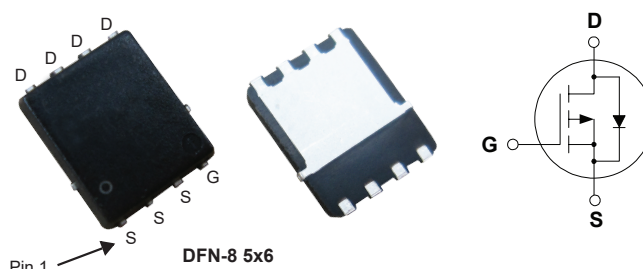
Product Summary

BVDSS	R _{DS(on)} max.	ID
-40V	7.9mΩ	-100A

Applications

- DC-DC Converters
- Load Switches

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA100P04B	DFN-8 5x6	CMSA100P04B

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-40	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	-100	A
I _D @T _C =100°C	Continuous Drain Current	-70	A
I _{DM}	Pulsed Drain Current	-300	A
EAS	Single Pulse Avalanche Energy ¹	648	mJ
P _D @T _C =25°C	Total Power Dissipation	120	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 _{θJA}	Thermal Resistance Junction-ambient(minimal footprint)	---	62	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	1.04	°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	$V_{GS}=0V$, $I_D=-250\mu A$	-40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-20A$	---	7	7.9	mΩ
		$V_{GS}=-4.5V$, $I_D=-20A$	---	8.6	10	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1.0	---	-2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-32V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-10A$	---	30	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	20	---	Ω
Q_g	Total Gate Charge	$V_{DD}=-32V$, $I_D=-85A$ $V_{GS}=0V$ to $-10V$	---	80	---	nC
Q_{gs}	Gate-Source Charge		---	20	---	
Q_{gd}	Gate-Drain Charge		---	13	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-20V$, $V_{GS}=-10V$, $R_G=3.5\Omega$ $I_D=-85A$	---	17	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	62	---	
T_f	Fall Time		---	40	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	5300	---	pF
C_{oss}	Output Capacitance		---	400	---	
C_{rss}	Reverse Transfer Capacitance		---	250	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-100	A
I_{SM}	Pulsed Source Current		---	---	-300	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=-28A$	---	-0.84	-1.3	V

Note :

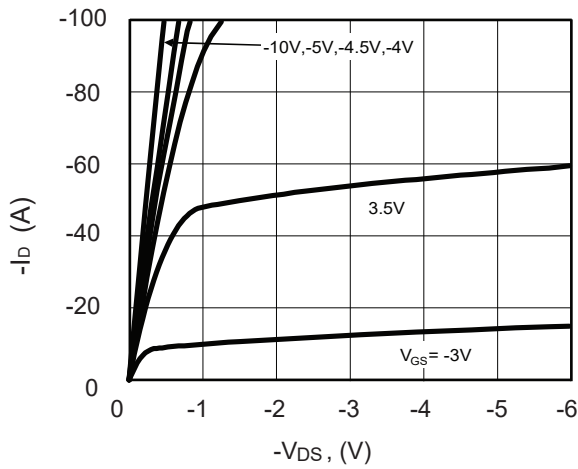
1. The EAS data shows Max. rating . The test condition is $V_{DD}=-30V$, $V_{GS}=-10V$, $L=1\text{mH}$, $I_{AS}=-36A$.

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

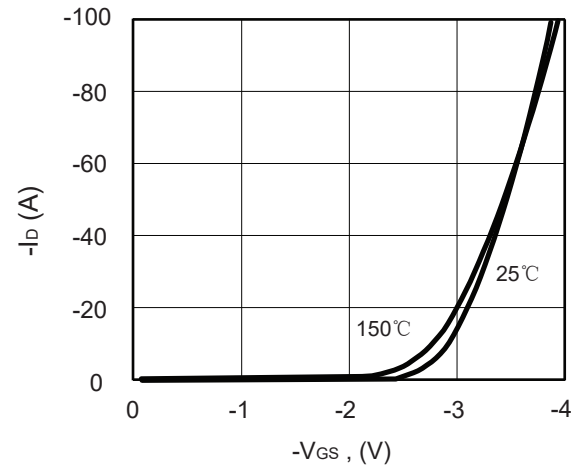
Cmos assumes no liability for customers' product design or applications.

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

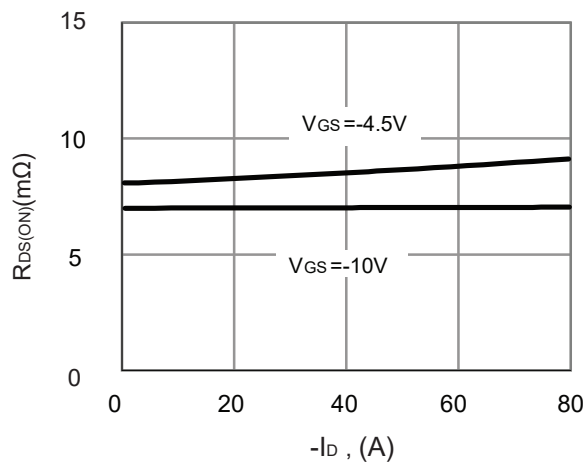
Typical Characteristics



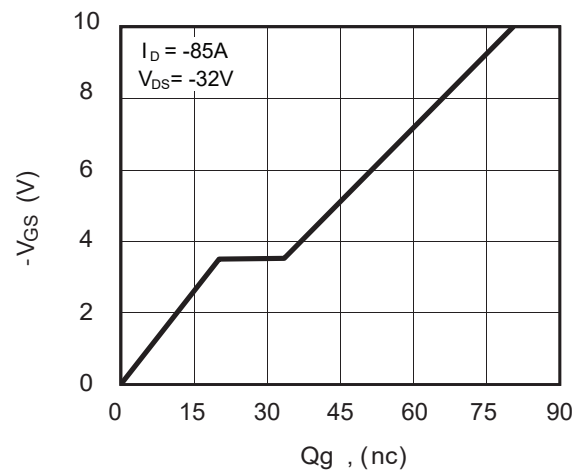
On-Region Characteristics



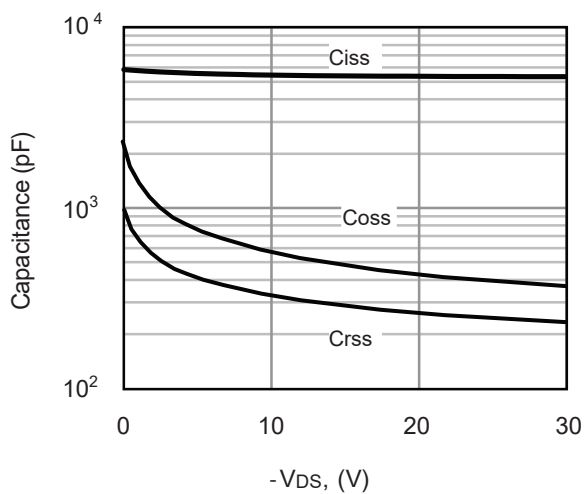
transfer characteristics



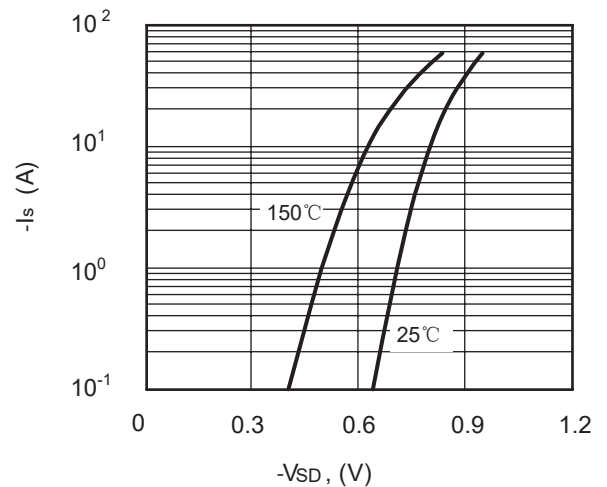
On-Resistance vs. Drain Current



Gate Charge Characteristics



Capacitance Characteristics

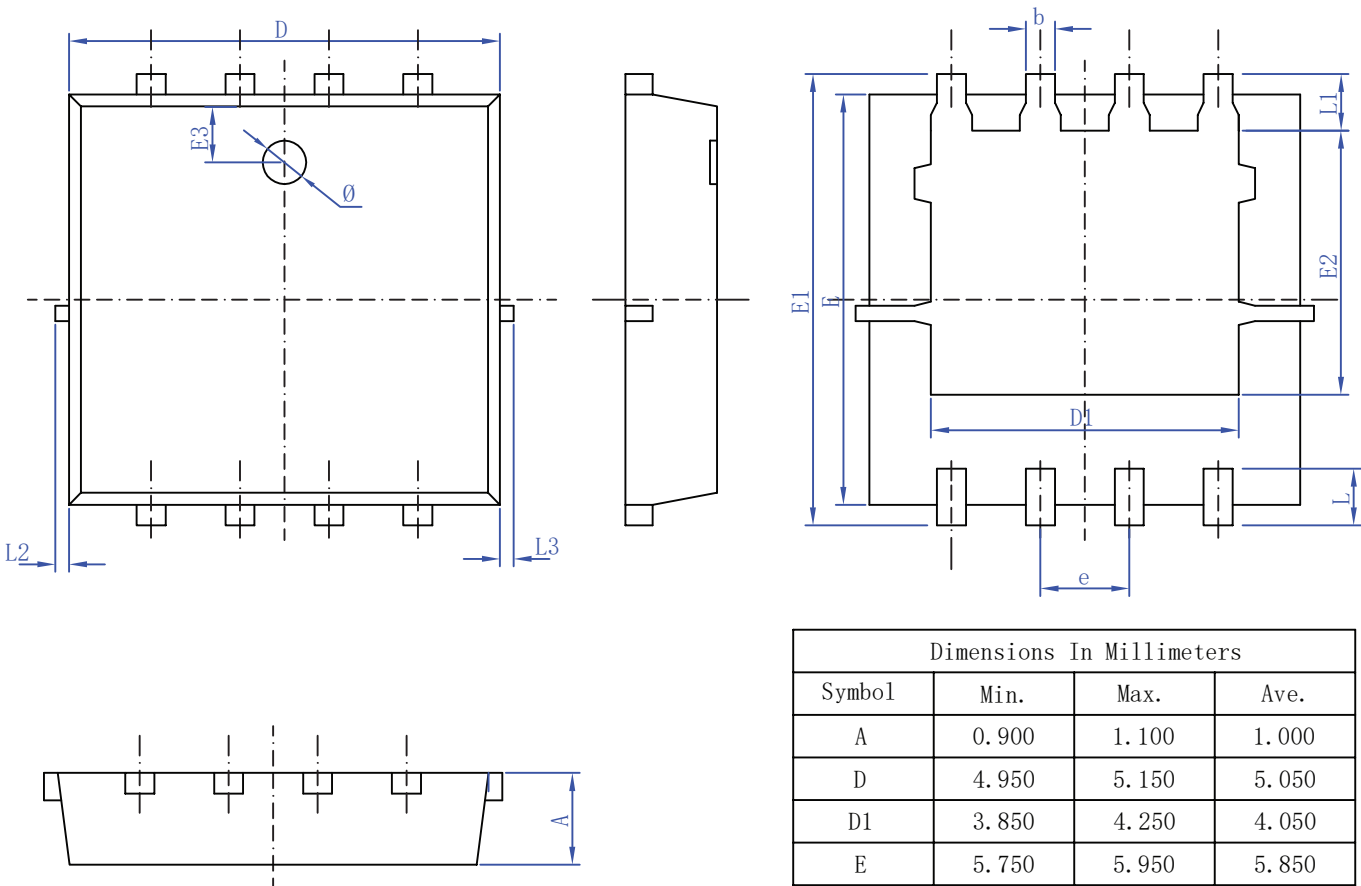


Body Diode Forward Voltage Variation with Source Current and Temperature

Package Dimension

DFN-8 5x6

Unit :mm



注：
1. 未注公差±0.05未标注圆角R max=0.25

Dimensions In Millimeters			
Symbol	Min.	Max.	Ave.
A	0.900	1.100	1.000
D	4.950	5.150	5.050
D1	3.850	4.250	4.050
E	5.750	5.950	5.850
E1	5.950	6.350	6.150
E2	3.300	3.700	3.500
E3	0.900	1.300	1.100
b	0.250	0.350	0.300
e	1.220	1.320	1.270
L	0.585	0.785	0.685
L1	0.525	0.725	0.625
Ø	1.000	1.400	1.200
L2	0~0.100		
L3	0~0.100		