

CMSA043N04L

40V, 3.7mΩ typ., 100A N-Channel MOSFET

General Description

The CMSA043N04L uses advanced SGT technology to provide excellent RDS(ON). This device is suitable to be used as the low side FET general purpose.

Features

- Low On-Resistance
- Simple Drive Requirements
- Small Footprint (5x6 mm) for Compact Design
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	100	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	70	A
I_{DM}	Pulsed Drain Current	400	A
EAS	Single Pulse Avalanche Energy ¹	144	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	110	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	---	60	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.14	°C/W

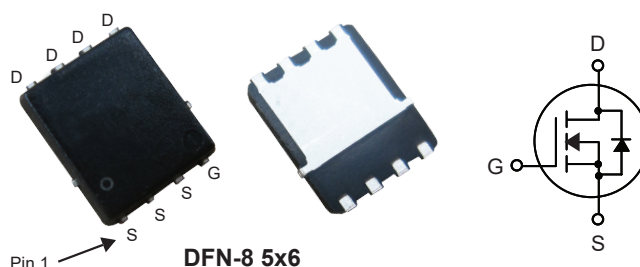
Product Summary

BVDSS	RDS(on) max.	ID
40V	4.3mΩ	100A

Applications

- Load Switch
- Synchronous Rectifier
- Motor Control Switch

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA043N04L	DFN-8 5x6	CMSA043N04L

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	$V_{GS}=10V$, $I_D=20A$	---	3.7	4.3	mΩ
		$V_{GS}=4.5V$, $I_D=15A$	---	4.5	6	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1.0	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=40V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=20A$	---	25	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3.5	---	Ω
Q_g	Total Gate Charge	$I_D=50A$	---	16	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=20V$	---	6	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=4.5V$ (Note 2)	---	4.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=20V$, $I_D=50A$	---	13	---	ns
T_r	Rise Time	$V_{GS}=10V$	---	7.5	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=10\Omega$	---	65	---	
T_f	Fall Time	$R_L=0.4\Omega$ (Note 2)	---	10	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1800	---	pF
C_{oss}	Output Capacitance		---	370	---	
C_{rss}	Reverse Transfer Capacitance		---	20	---	

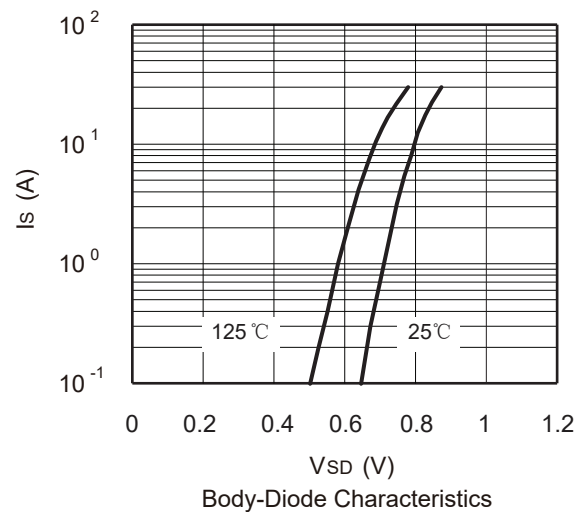
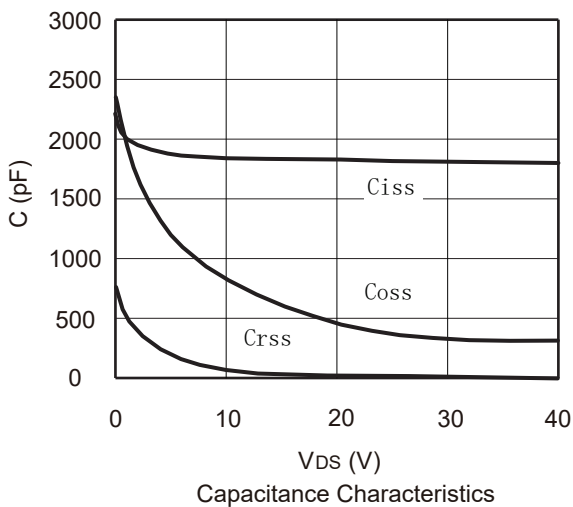
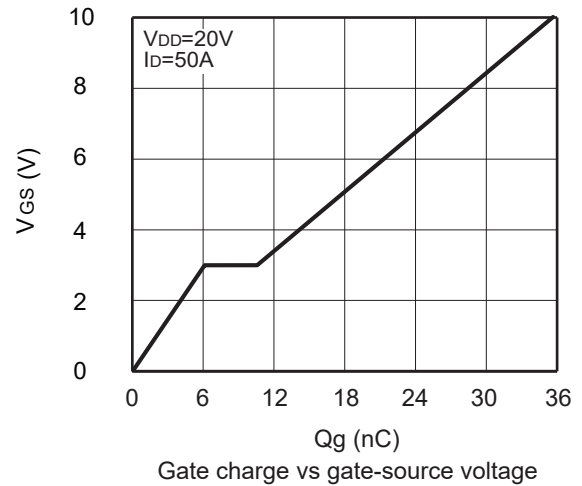
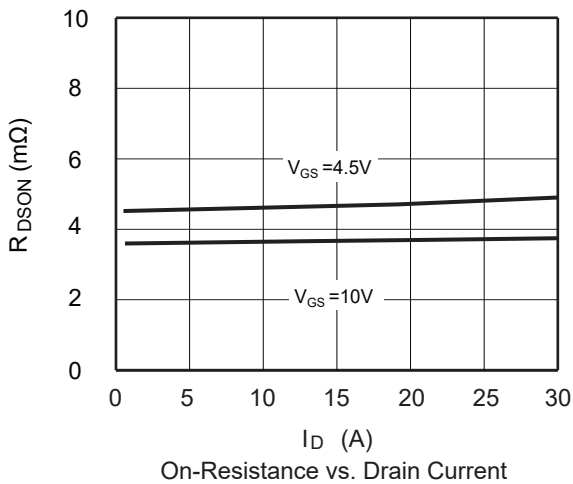
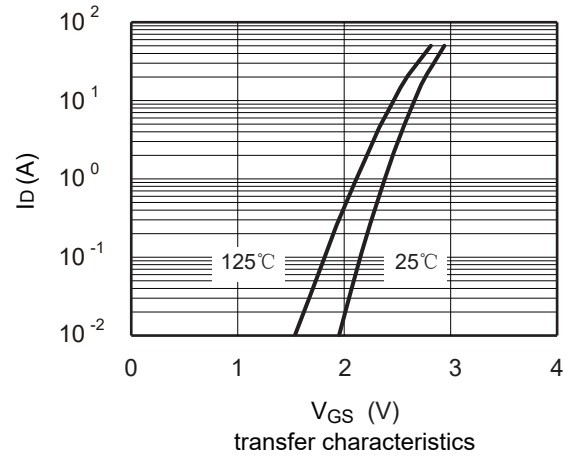
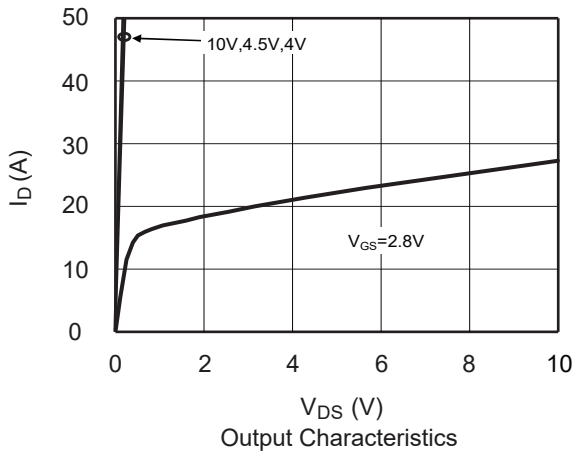
Diode Characteristics

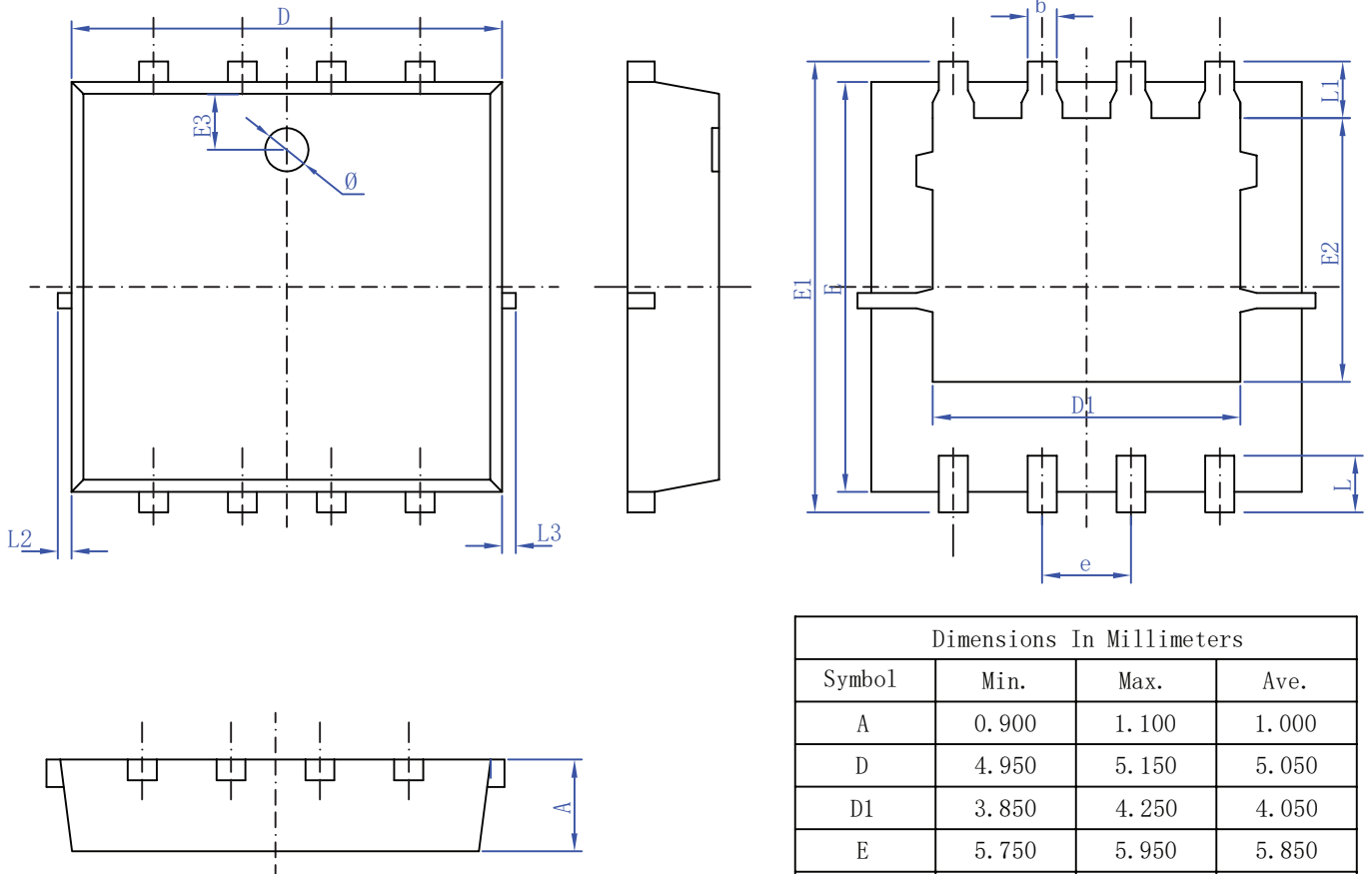
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	100	A
I_{SM}	Pulsed Source Current		---	---	400	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	0.84	1.2	V

Note :

- 1.The EAS data shows Max. rating . The test condition is $V_{DD}=30V$, $V_{GS}=10V$, $L=0.5\text{mH}$, $I_{AS}=24A$.
- 2.Guaranteed by design, not subject to production testing.

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
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		