

-40V, 13mΩ typ., -35A P-Channel MOSFET**General Description**

The CMSC160P04 uses advanced SGT technology to provide excellent RDS(ON). This device is suitable for use as a load switch or power management.

Features

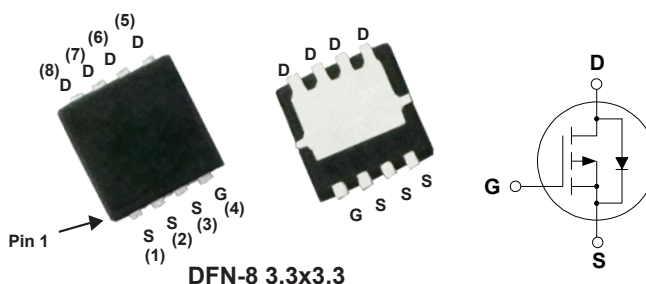
- P-Channel MOSFET
- Low ON-resistance
- 100% avalanche tested
- RoHS Compliant

Product Summary

BVDSS	RDS(on) max.	ID
-40V	16mΩ	-35A

Applications

- Load Switch
- Battery Protection

DFN-8 3.3x3.3 Pin Configuration

Type	Package	Marking
CMSC160P04	DFN-8 3.3x3.3	160P04

Absolute Maximum Ratings (TA=25 °C Unless Otherwise Noted)

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	-35	A
I _D @T _C =100°C	Continuous Drain Current	-23	A
I _{DM}	Pulsed Drain Current	-140	A
EAS	Single Pulse Avalanche Energy ¹	100	mJ
P _D @T _C =25°C	Total Power Dissipation	35	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient(Steady-State)	---	55	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	1.67	°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	$V_{GS}=-10V$, $I_D=-20A$	---	13	16	mΩ
		$V_{GS}=-4.5V$, $I_D=-15A$	---	20	30	
$V_{GS(th)}$	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	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS} = -10V$, $I_D = -20A$	---	12	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	14.5	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-20V$, $V_{GS}=-10V$, $I_D=-20A$	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	3.5	---	
Q_{gd}	Gate-Drain Charge		---	2	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-20V$, $V_{GS} = -10V$, $R_G=3\Omega$ $I_D=-20A$	---	2.5	---	ns
T_r	Rise Time		---	13	---	
$T_{d(off)}$	Turn-Off Delay Time		---	45	---	
T_f	Fall Time		---	20	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1000	---	pF
C_{oss}	Output Capacitance		---	460	---	
C_{rss}	Reverse Transfer Capacitance		---	8	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-35	A
I_{SM}	Pulsed Source Current		---	---	-140	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-20A$, $T_J=25^{\circ}\text{C}$	---	-0.88	-1.2	V

Note :

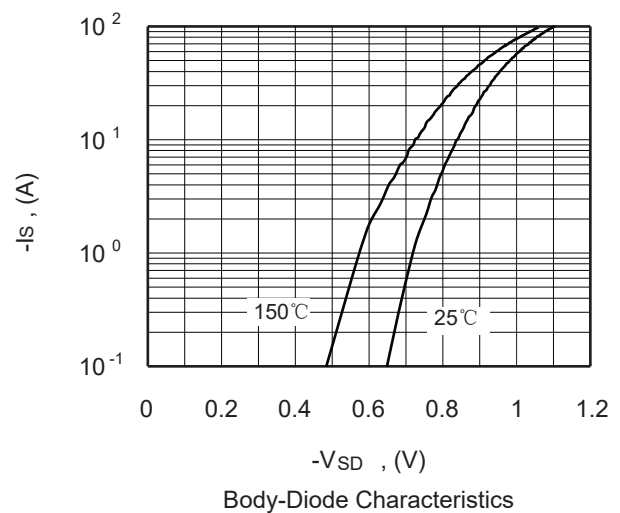
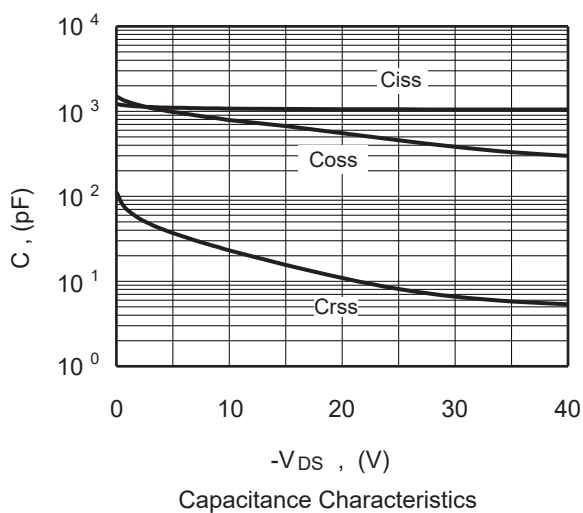
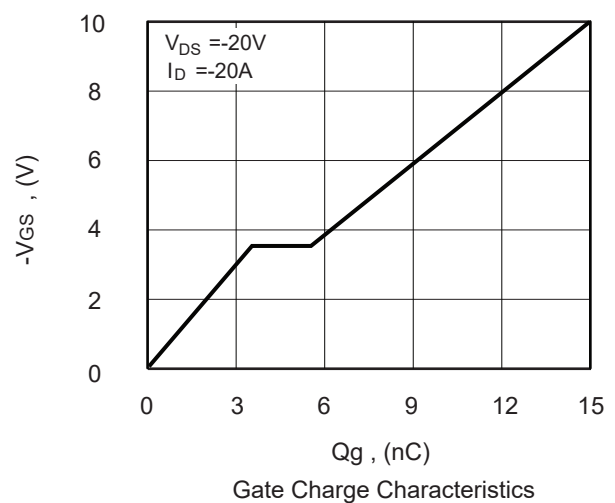
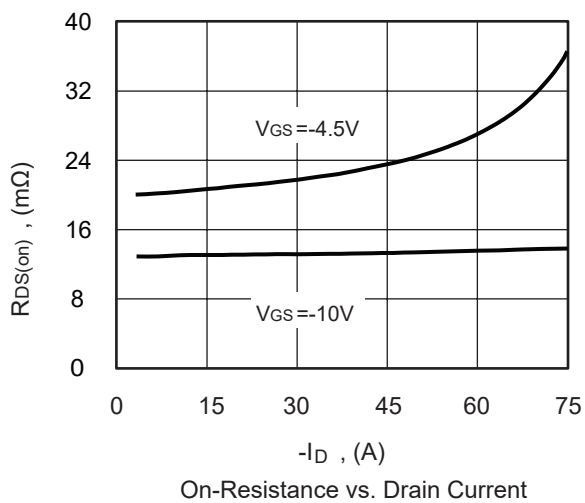
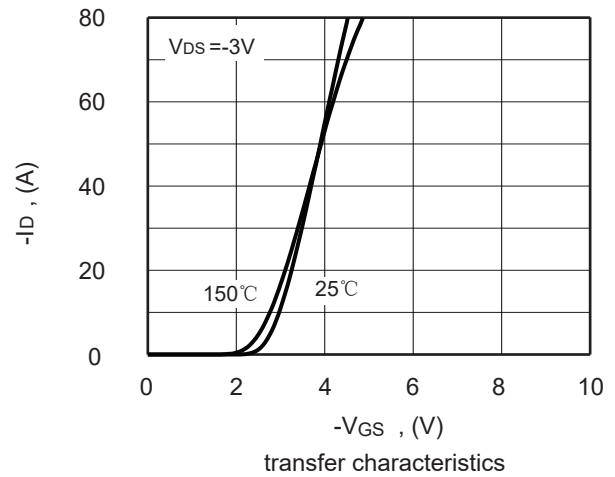
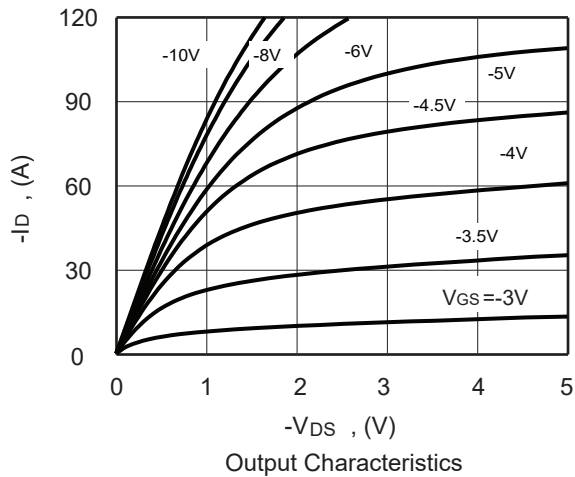
1.The EAS data shows Max. rating . The test condition is $V_{DD}=-30V$, $V_{GS}=-10V$, $L=0.5\text{mH}$, $I_{AS}=-20A$.

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

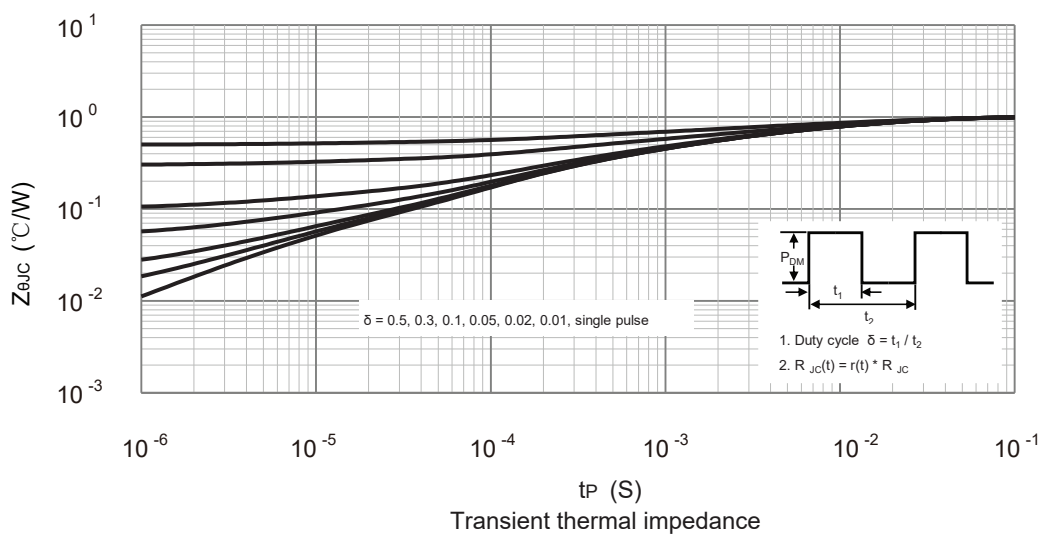
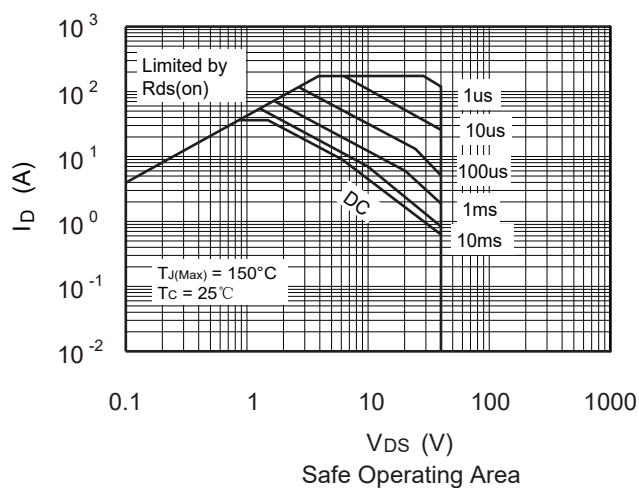
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Typical Characteristics

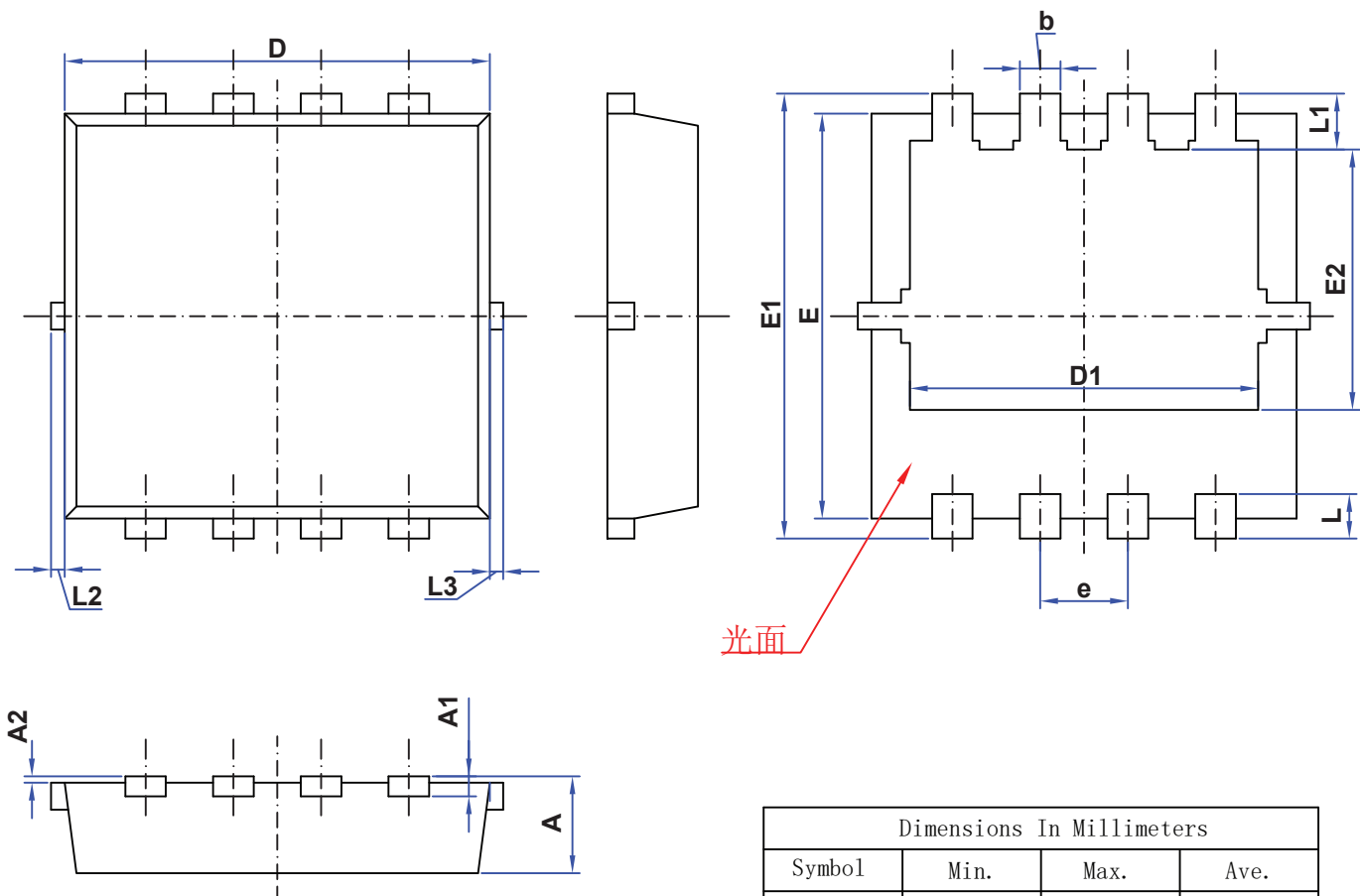


Characteristics



Package Dimension

DFN-8 3.3x3.3 Unit :mm



- 注:
- 1. 未注公差±0.10,
 - 2. 塑封体无缺损、缩孔、裂纹、气泡等不良缺陷
 - 3. 标注单位mm

Dimensions In Millimeters			
Symbol	Min.	Max.	Ave.
A	0.700	0.900	0.800
A1	0.100	0.200	0.150
A2	-	0.050	-
D	3.000	3.200	3.100
D1	2.350	2.550	2.450
E	3.000	3.200	3.100
E1	3.200	3.600	3.400
E2	1.635	1.835	1.735
b	0.200	0.400	0.300
e	0.550	0.750	0.650
L	0.250	0.650	0.450
L1	0.345	0.745	0.545
L2	0~0.100		
L3	0~0.100		