CMB180P04G-7

-40V, 4mΩ typ., -180A P-Channel MOSFET

General Description

The CMB180P04G-7 uses advanced trench technology to provide excellent $R_{DS(ON)}$.this device is well suited for high current load applications.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
-40V	4.8mΩ	-180A

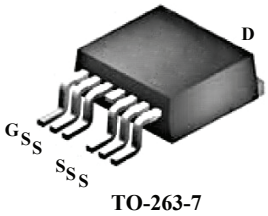
Applications

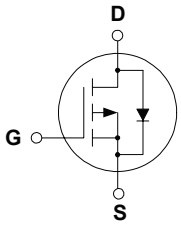
- DC/DC Converter

Features

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

TO-263-7 Pin Configuration





Type	Package	Marking
CMB180P04G-7	TO-263-7	CMB180P04G-7

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℃	Continuous Drain Current	-180	A
I_D@T_C=100℃	Continuous Drain Current	-120	A
I_{DM}	Pulsed Drain Current	-720	A
EAS	Single Pulse Avalanche Energy (Note 1)	2890	mJ
P_D@T_C=25℃	Total Power Dissipation	350	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient Max.	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case Max.	0.36	℃/W

-40V, 4mΩ typ., -180A P-Channel MOSFET

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V , I_D=-90A	---	4	4.8	mΩ
		V_{GS}=-4.5V , I_D=-90A	---	5	6	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1	---	-2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-32V , V_{GS}=0V , T_J=25℃	---	---	-1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-10V , I_D=-20A	---	60	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	10	---	Ω
Q_g	Total Gate Charge	V_{DS}=-20V , I_D=-110A V_{GS}=-10V	---	220	---	nC
Q_{gs}	Gate-Source Charge		---	34	---	
Q_{gd}	Gate-Drain Charge		---	56	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=-20V , R_G=1Ω , R_L=0.18Ω I_D=-110A , V_{GEN}=-10V	---	17	---	ns
T_r	Rise Time		---	15	---	
$T_{d(off)}$	Turn-Off Delay Time		---	112	---	
T_f	Fall Time		---	45	---	
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V , f=1MHz	---	12200	---	pF
C_{oss}	Output Capacitance		---	850	---	
C_{rss}	Reverse Transfer Capacitance		---	790	---	

Diode Characteristics

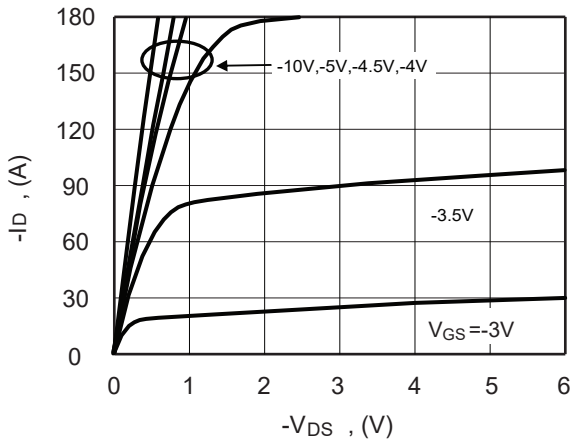
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-180	A
I_{SM}	Pulsed Source Current		---	---	-720	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=-90A	---	-0.97	-1.5	V

Note :

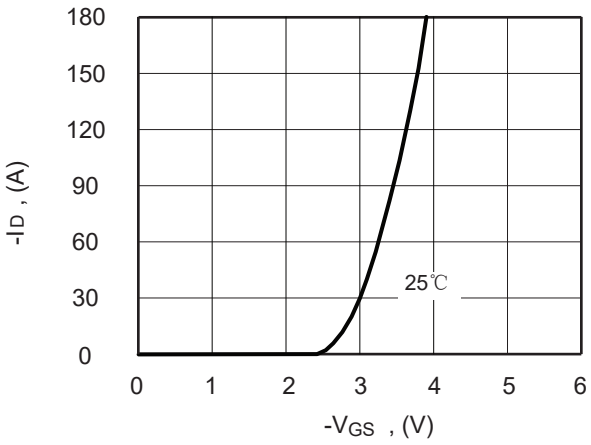
1.The EAS data shows Max. rating .The test condition is V_{DS}=-40V , V_{GS}=-10V , L=5mH , I_{AS}=-34A.

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Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

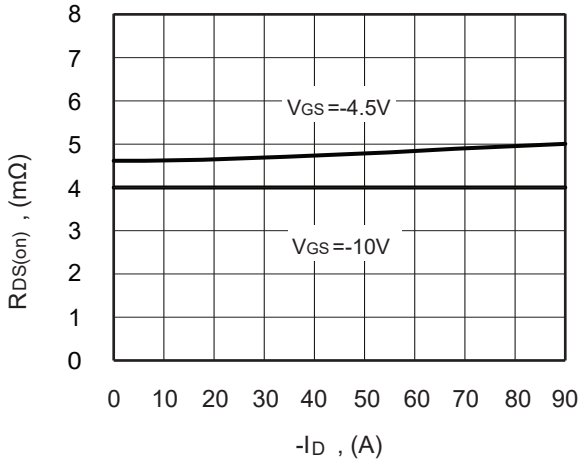
Typical Characteristics



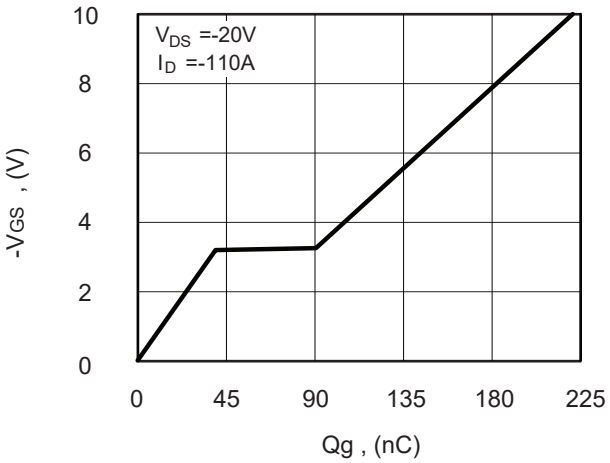
Output Characteristics



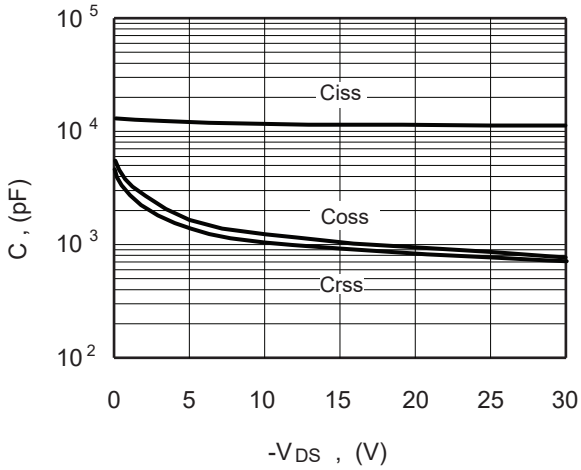
transfer characteristics



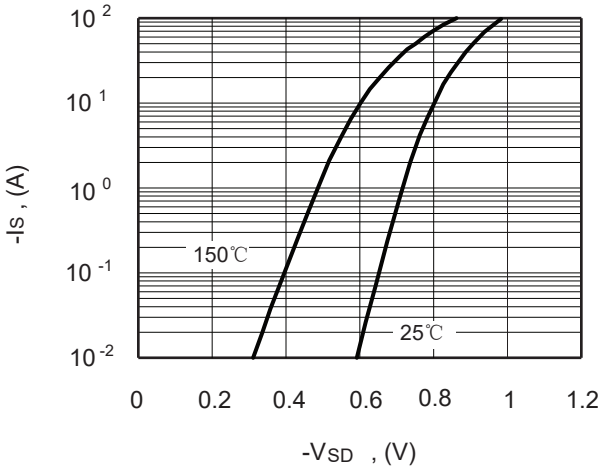
On-Resistance vs. Drain Current



Gate Charge Characteristics



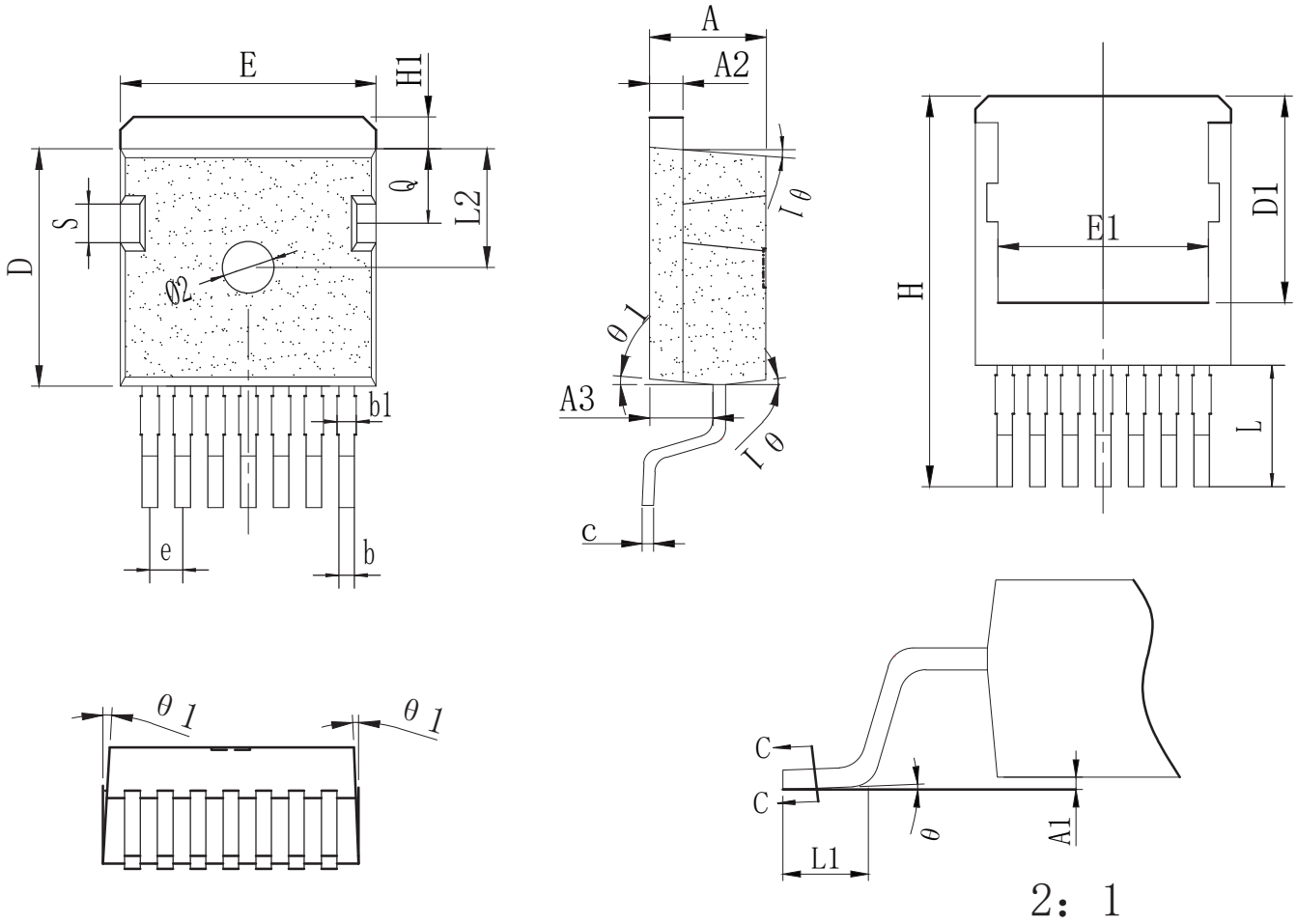
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

TO-263-7 Unit :mm



SYMBOL	mm			SYMBOL	mm		
	MIN	NOM	MAX		MIN	NOM	MAX
✻A	4.30	4.40	4.50	E1	8.20	8.40	8.60
✻A1	0.00	0.10	0.20	✻e	1.25	1.27	1.29
✻A2	1.22	1.27	1.32	✻H	14.85	15.00	15.15
✻A3	2.30	2.40	2.50	H1	1.10	1.20	1.30
✻b	0.50	0.60	0.70	✻L	4.50	4.70	4.90
✻b1	-	-	0.63	L1	1.70	2.00	2.30
✻c	0.45	0.50	0.55	L2	4.55	4.65	4.75
✻D	9.15	9.30	9.45	S	1.40	1.50	1.60
D1	规格A：8.00REF			Q	2.80	2.90	3.00
	规格B：5.70REF			✻θ	0°	2.5°	8°
✻E	10.12	10.16	10.20	θ1	5°	7°	9°