

General Description

The CMB100P03B is a P-channel Power MOSFET. They use advanced trench technology to provide excellent $R_{DS(ON)}$. The device is therefore suitable in advanced high-efficiency switching applications.

Features

- Fast switching
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

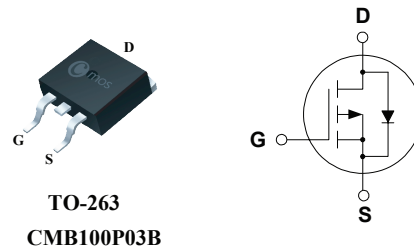
Product Summary

BVDSS	RDSON	ID
-30V	7.5mΩ	-100A

Applications

- DC-DC Converters
- Motor control
- LED controller

TO-263 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	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	-59	A
I_{DM}	Pulsed Drain Current	-400	A
EAS	Single Pulse Avalanche Energy ¹	289	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	90	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient	---	62.5	°C/W
$R_{\theta JC}$	Junction-to-Case	---	1.6	°C/W

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-20A$	---	6.5	7.5	$m\Omega$
		$V_{GS}=-4.5V$, $I_D=-20A$	---	10.5	12	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1	---	-2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-30V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
		$V_{DS}=-30V$, $V_{GS}=0V$, $T_J=125^{\circ}\text{C}$	---	---	-50	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-10A$	---	18	---	S
Q_g	Total Gate Charge	$V_{DS}=-15V$, $I_D=-50A$ $V_{GS}=-4.5V$	---	31	---	nC
Q_{gs}	Gate-Source Charge		---	11	---	
Q_{gd}	Gate-Drain Charge		---	10	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-15V$, $V_{GS}=-10V$, $R_G=3.3\Omega$ $I_D=-15A$	---	9	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	116	---	
T_f	Fall Time		---	23	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3700	---	pF
C_{oss}	Output Capacitance		---	350	---	
C_{rss}	Reverse Transfer Capacitance		---	300	---	

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	$V_{GS}=0V$, $I_F=-20A$	---	---	-1.5	V

Notes

1. The test condition is $V_{DD}=-20V$, $V_{GS}=-10V$, $L=0.5mH$, $I_{AS}=-34A$

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