

### General Description

The CMB5970 uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications.

### Features

- P-Channel
- Low ON-resistance.
- Fast Switching
- 100% avalanche tested

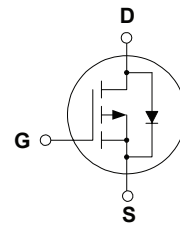
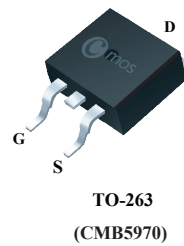
### Product Summary

BVDSS	RDSON	ID
-150V	85mΩ	-30A

### Applications

- Inverters
- Motor drive
- DC / DC converter

### TO-263 Pin Configuration



### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	-150	V
$V_{GS}$	Gate-Source Voltage	±20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-30	A
$I_{DM}$	Pulsed Drain Current	-90	A
$I_{AS}$	Avalanche Current	-30	A
$P_D@T_C=25^\circ C$	Total Power Dissipation	200	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	2	°C/W

**Electrical Characteristics (T<sub>J</sub>=25 °C , unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =-250uA	-150	---	---	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =-10V, I <sub>D</sub> =-10A	---	75	85	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-8A	---	160	180	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =-250 uA	-1	---	-3	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =-100V , V <sub>GS</sub> =0V	---	---	-1	uA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> = ±20V , V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> = -10V, I <sub>D</sub> = -10A	---	---	40	S
Q <sub>g</sub>	Total Gate Charge	I <sub>D</sub> = -20A V <sub>DS</sub> = -80V V <sub>GS</sub> = -10V	---	65	---	nC
Q <sub>gs</sub>	Gate-Source Charge		---	10	---	
Q <sub>gd</sub>	Gate-Drain Charge		---	17	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> = -50V I <sub>D</sub> = -10A R <sub>L</sub> =5.6Ω V <sub>GS</sub> =-10V	---	20	---	ns
T <sub>r</sub>	Rise Time		---	80	---	
T <sub>d(off)</sub>	Turn-Off Delay Time		---	250	---	
T <sub>f</sub>	Fall Time		---	90	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V , f=1MHz	---	6600	---	pF
C <sub>oss</sub>	Output Capacitance		---	300	---	
C <sub>riss</sub>	Reverse Transfer Capacitance		---	200	---	

**Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
t <sub>rr</sub>	Reverse Recovery Time	I <sub>S</sub> =-8A dI/dt=-100A/μs	---	70	---	ns
Q <sub>rr</sub>	Reverse Recovery Charge		---	230	---	nC
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V , I <sub>S</sub> =-20A	---	---	-1.3	V

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