

### General Description

These P-Channel enhancement mode power field effect transistors use advanced trench technology and design to provide excellent RDS(ON) . This device is suitable for use as a load switch or in PWM applications.

### Features

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

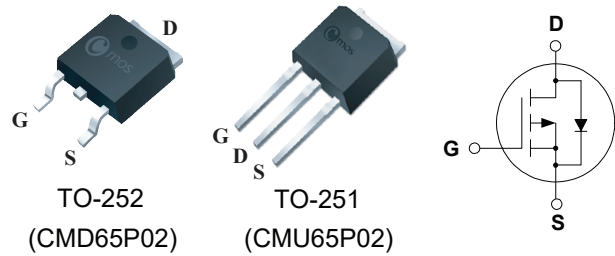
### Product Summary

BVDSS	RDSON	ID
-20V	10.5mΩ	-65A

### Applications

- DC-DC Converters
- Load Switches
- BLDC Motor driver

### TO-252 / 251 Pin Configuration



### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	-20	V
$V_{GS}$	Gate-Source Voltage	±12	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-65	A
$I_{DM}$	Pulsed Drain Current	-260	A
EAS	Single Pulse Avalanche Energy <sup>1</sup>	112	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	60	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
$R_{\theta JA}$	Junction-to-Ambient	---	62.5	°C/W
$R_{\theta JC}$	Junction-to-Case (Drain)	---	2.1	°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	-20	---	---	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =-4.5V , I <sub>D</sub> =-30A	---	---	10.5	mΩ
		V <sub>GS</sub> =-2.5V , I <sub>D</sub> =-20A	---	---	14.5	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =-250uA	-0.5	---	-1.5	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =-16V , V <sub>GS</sub> =0V , T <sub>J</sub> =25°C	---	---	-1	uA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> = ±12V , V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =-10V , I <sub>D</sub> =-10A	---	22	---	S
R <sub>g</sub>	Gate Resistance	V <sub>DS</sub> =0V , V <sub>GS</sub> =0V , f=1MHz	---	12.5	---	Ω
Q <sub>g</sub>	Total Gate Charge	V <sub>DD</sub> =-15V , I <sub>D</sub> =-10A V <sub>GS</sub> =-4.5V	---	115	---	nC
Q <sub>gs</sub>	Gate-Source Charge		---	7	---	
Q <sub>gd</sub>	Gate-Drain Charge		---	20	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> =-10V , V <sub>GS</sub> =-4.5V , R <sub>GS</sub> =6Ω I <sub>D</sub> =-1A	---	25	---	ns
T <sub>r</sub>	Rise Time		---	60	---	
T <sub>d(off)</sub>	Turn-Off Delay Time		---	155	---	
T <sub>f</sub>	Fall Time		---	65	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-15V , V <sub>GS</sub> =0V , f=1MHz	---	3500	---	pF
C <sub>oss</sub>	Output Capacitance		---	410	---	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	340	---	

**Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current	V <sub>G</sub> =V <sub>D</sub> =0V , Force Current	---	---	-65	A
I <sub>SM</sub>	Pulsed Source Current		---	---	-260	A
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V , I <sub>F</sub> =-20A	---	---	-1.5	V

Note :

1.EAS condition:T<sub>J</sub>=25°C ,V<sub>DD</sub>=-10V,V<sub>GS</sub>=-10V,I<sub>D</sub>=-15A,L=1mH.

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Typical Characteristics

