

### General Description

The 12P10B 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

### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	-100	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	-12	A
$I_{DM}$	Pulsed Drain Current (Note 1)	-48	A
EAS	Single Pulse Avalanche Energy	60	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	75	W
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	2.0	$^\circ\text{C/W}$

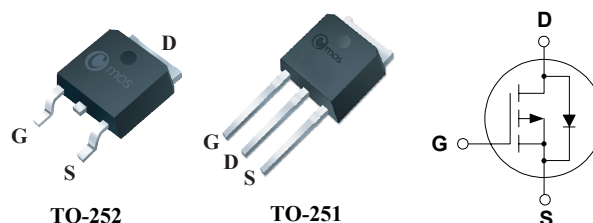
### Product Summary

BVDSS	RDSON	ID
-100V	0.26 $\Omega$	-12A

### Applications

- Power Switch
- DC / DC converter

### TO-252/251 Pin Configuration



Type	Package	Marking
CMD12P10B	TO-252	CMD12P10B
CMU12P10B	TO-251	CMU12P10B

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V$ , $I_D=-250\mu A$	-100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$ , $I_D=-6A$	---	---	0.26	$\Omega$
		$V_{GS}=-4.5V$ , $I_D=-5A$	---	---	0.28	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$ , $I_D=-250\mu A$	-1	---	-3	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=-100V$ , $V_{GS}=0V$	---	---	-1	$\mu A$
		$V_{DS}=-80V$ , $T_C=150^\circ\text{C}$	---	---	-10	
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V$ , $V_{DS}=0V$	---	---	$\pm 100$	nA
$g_{fs}$	Forward Transconductance	$V_{DS}=-10V$ , $I_D=-6A$ (Note 2)	---	8	---	S
$Q_g$	Total Gate Charge	$I_D=-11.5A$	---	20	---	nC
$Q_{gs}$	Gate-Source Charge	$V_{DS}=-80V$	---	4	---	
$Q_{gd}$	Gate-Drain Charge	$V_{GS}=-10V$ (Note 2, 3)	---	11	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-50V$	---	14	---	ns
$T_r$	Rise Time	$I_D=-11.5A$	---	158	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=25\Omega$	---	34	---	
$T_f$	Fall Time	(Note 2, 3)	---	58	---	
$C_{iss}$	Input Capacitance	$V_{DS}=-25V$ , $V_{GS}=0V$ , $f=1\text{MHz}$	---	1400	---	pF
$C_{oss}$	Output Capacitance		---	220	---	
$C_{rss}$	Reverse Transfer Capacitance		---	65	---	

### Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$t_{rr}$	Reverse Recovery Time	$I_S=-11.5A$ , $V_{GS}=0V$	---	110	---	ns
$Q_{rr}$	Reverse Recovery Charge	$dI/dt=-100A/\mu s$ (Note 2)	---	0.47	---	$\mu C$
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V$ , $I_S=-12A$	---	---	-1.2	V

#### Notes:

1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. Pulse Test : Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$
3. Essentially independent of operating temperature

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