

### General Description

The 9N25 uses advanced technology and design to provide excellent  $R_{DS(ON)}$ .

This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

### Features

- Fast Switching
- 175°C Operating Temperature
- 100% avalanche tested
- Simple Drive Requirements
- RoHS Compliant

### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	250	V
$V_{GS}$	Gate-Source Voltage	$\pm 30$	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	9	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	7	A
$I_{DM}$	Pulsed Drain Current	36	A
EAS	Single Pulse Avalanche Energy	145	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	96	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	85	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.3	°C/W

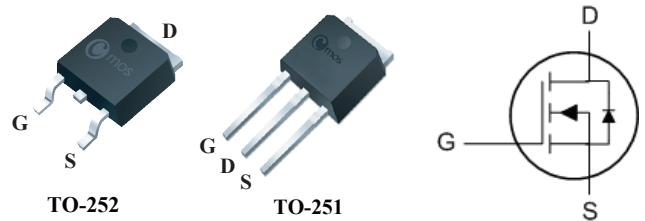
### Product Summary

BVDSS	RDSON	ID
250V	0.38Ω	9A

### Applications

- PWM Motor Controls
- LED TV
- DC-DC Converters

### TO-252/251 Pin Configuration



Type	Package	Marking
CMD9N25	TO-252	CMD9N25
CMU9N25	TO-251	CMU9N25

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	250	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=3A$	---	---	0.38	$\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	3	---	5	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=200V, V_{GS}=0V$	---	---	1	$\mu A$
		$V_{DS}=200V, V_{GS}=0V, T_J=125^{\circ}\text{C}$	---	---	10	
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS} = \pm 30V$	---	---	$\pm 100$	nA
$g_{fs}$	Forward Transconductance	$V_{DS}=10V, I_D=3A$	---	6	---	S
$Q_g$	Total Gate Charge	$V_{DS}=200V, V_{GS}=10V, I_D=9A$	---	21	---	nC
$Q_{gs}$	Gate-Source Charge		---	4	---	
$Q_{gd}$	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=125V, V_{GS} = 10V, R_G=25\Omega$ $I_D=9A$	---	8	---	ns
$T_r$	Rise Time		---	32	---	
$T_{d(off)}$	Turn-Off Delay Time		---	51	---	
$T_f$	Fall Time		---	31	---	
$C_{iss}$	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	600	---	pF
$C_{oss}$	Output Capacitance		---	105	---	
$C_{rss}$	Reverse Transfer Capacitance		---	22	---	

### Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Continuous Source Current	$V_G=V_D=0V$ , Force Current	---	---	9	A
$I_{SM}$	Pulsed Source Current		---	---	36	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_S=8A, T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

This product has been designed and qualified for the consumer market.  
Cmos assumes no liability for customers' product design or applications.  
Cmos reserves the right to improve product design, functions and reliability without notice.