

### General Description

The 150N04A uses advanced technology and design to provide excellent RDS(ON) .

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

### Features

- Max  $r_{DS(on)} = 3m\Omega$  at  $V_{GS} = 10V$
- Fast Switching
- RoHS Compliant

### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	40	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	120	A
$I_D@T_C=100^\circ C$		95	A
$I_{DM}$	Pulsed Drain Current	360	A
$E_{AS}$	Drain-Source Avalanche Energy <sup>1</sup>	430	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	150	W
$T_{STG}$	Storage Temperature Range	-55 to 175	$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 175	$^\circ C$

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	60.0	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.0	$^\circ C/W$

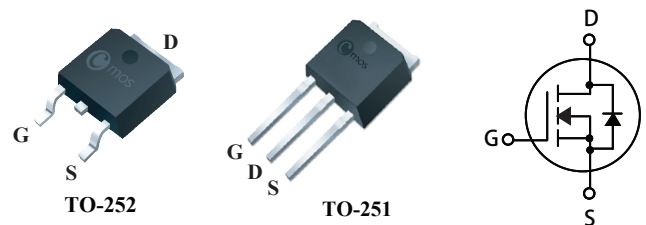
### Product Summary

BVDSS	RDSON	ID
40V	3.0m $\Omega$	120A

### Applications

- Inverters
- Power Supplies

### TO-252/251 Pin Configuration



Type	Package	Marking
CMD150N04A	TO-252	CMD150N04A
CMU150N04A	TO-251	CMU150N04A

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=28A$	---	---	3.0	m $\Omega$
		$V_{GS}=4.5V, I_D=25A$	---	---	5.0	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1	---	3	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=32V, V_{GS}=0V$	---	---	1	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	nA
$g_{fs}$	Forward Transconductance	$V_{DS}=5V, I_D=28A$	---	37	---	S
$R_g$	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	0.7	---	$\Omega$
$Q_g$	Total Gate Charge	$I_D=55A$	---	61	---	nC
$Q_{gs}$	Gate-Source Charge	$V_{DS}=20V$	---	10	---	
$Q_{gd}$	Gate-Drain Charge	$V_{GS}=10V$	---	9	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=20V$	---	10	---	ns
$T_r$	Rise Time	$I_D=55A$	---	5	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=1.6\Omega$	---	36	---	
$T_f$	Fall Time	$V_{GS}=10V$	---	6	---	
$C_{iss}$	Input Capacitance	$V_{DS}=20V, V_{GS}=0V, f=1\text{MHz}$	---	6500	---	pF
$C_{oss}$	Output Capacitance		---	860	---	
$C_{rss}$	Reverse Transfer Capacitance		---	60	---	

### Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Continuous Source Current	$V_G=V_D=0V, \text{Force Current}$	---	---	120	A
$I_{SM}$	Pulsed Source Current		---	---	360	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_S=20A$	---	---	1.2	V

Notes:

1.Starting  $T_J = 25^{\circ}\text{C}$ ,  $L=1.0\text{mH}$ ,  $I_{AS}=41.6A$ ,  $V_{DD}=20V$ ,  $V_{GS}=10V$ .

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