

General Description

This N-Channel MOSFET has been produced using advanced trench technology to deliver low $R_{DS(on)}$ and optimized $BVDSS$ capability to offer superior performance benefit in the application

Features

- Max $r_{DS(on)}$ = 9m Ω at V_{GS} = 10V
- Max $r_{DS(on)}$ = 11m Ω at V_{GS} = 4.5V
- Fast Switching
- RoHS Compliant

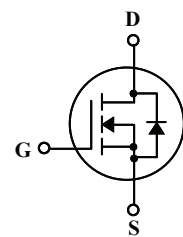
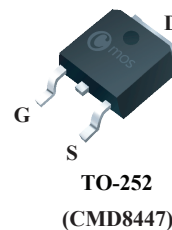
Product Summary

BVDSS	RDSON	ID
40V	9m Ω	50A

Applications

- Inverters
- Power Supplies

TO-252 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	50	A
I_{DM}	Pulsed Drain Current	150	A
E_{AS}	Drain-Source Avalanche Energy ¹	61.5	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	45	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	---	40	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	2.8	$^\circ\text{C}/\text{W}$

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 ²	$V_{GS}=10V$, $I_D=20A$	---	---	9	m Ω
		$V_{GS}=4.5V$, $I_D=15A$	---	---	11	
$V_{GS(th)}$	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	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance ²	$V_{DS}=10V$, $I_D=9A$	---	13	---	S
Q_g	Total Gate Charge	$I_D=14A$	---	37	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=20V$	---	6	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	7	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=20V$	---	12	---	ns
T_r	Rise Time	$I_D=1A$	---	12	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_{GEN}=6\Omega$	---	38	---	
T_f	Fall Time	$V_{GS}=10V$	---	9	---	
C_{iss}	Input Capacitance	$V_{DS}=20V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2100	---	pF
C_{oss}	Output Capacitance		---	200	---	
C_{rss}	Reverse Transfer Capacitance		---	120	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	$I_F=14A$	---	22	---	ns
Q_{rr}	Reverse Recovery Charge	$di/dt=100A/\mu s$	---	11	---	nC
V_{SD}	Diode Forward Voltage ²	$V_{GS}=0V$, $I_S=14A$	---	---	1.2	V

Notes:

1.Starting $T_J=25^{\circ}\text{C}$, $L=0.1\text{mH}$, $I_{AS}=35A$, $V_{DD}=15V$, $V_{GS}=10V$.

2.Pulse Test: Pulse Width < 300 μs , Duty cycle < 2.0%.

This product has been designed and qualified for the consumer market.

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Cmos reserves the right to improve product design ,functions and reliability without notice.

Typical Characteristics

