

General Description

The CMD607 uses advanced trench technology MOSFETs to provide excellent $R_{DS(ON)}$ and low gate charge.

The complementary MOSFETs may be used in H-bridge, Inverters and other applications.

Features

- 30V 25A $R_{DS(ON)} \leq 16m\Omega$ @ $V_{GS}=10V$
 $R_{DS(ON)} \leq 19m\Omega$ @ $V_{GS}=4.5V$
- -30V -12A $R_{DS(ON)} \leq 35m\Omega$ @ $V_{GS}=10V$
 $R_{DS(ON)} \leq 45m\Omega$ @ $V_{GS}=4.5V$
- High Density Cell Design For Ultra Low On Resistance

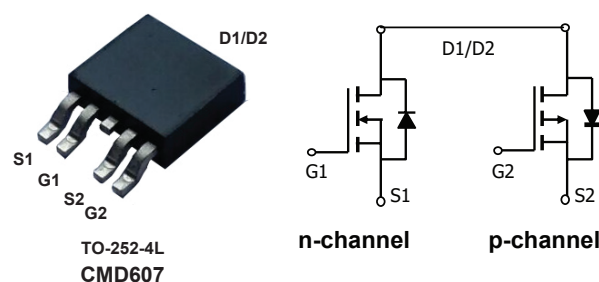
Product Summary

	BVDSS	$R_{DS(ON)}$	ID
N-Channel	30V	16m Ω	25A
P-Channel	-30V	35m Ω	-12A

Applications

- Power Management
- Load Switch
- DC/DC Converter

TO-252-4L Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Max n-channel	Max p-channel	Units
V_{DS}	Drain-Source Voltage	30	-30	V
V_{GS}	Gate-Source Voltage	± 20	± 20	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current	25	-12	A
I_{DM}	Pulsed Drain Current	75	-36	A
$P_D @ T_C = 25^\circ C$	Power Dissipation	25	25	W
T_{STG}	Storage Temperature Range	-55 to 150	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	-55 to 150	$^\circ C$

Thermal Characteristics: n-channel

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Maximum Junction-to-Ambient (Steady-State)	---	60	$^\circ C/W$
$R_{\theta JC}$	Maximum Junction-to-Case (Steady-State)	---	6	$^\circ C/W$

N- and P-Channel Enhancement Mode MOSFET
Thermal Characteristics: p-channel

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Maximum Junction-to-Ambient (Steady-State)	---	60	$^{\circ}\text{C/W}$
$R_{\theta JC}$	Maximum Junction-to-Case (Steady-State)	---	6	$^{\circ}\text{C/W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=12A$	---	---	16	m Ω
		$V_{GS}=4.5V, I_D=10A$	---	---	19	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=24V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V, I_D=12A$	---	14	---	S
Q_g	Total Gate Charge (10V)	$V_{DS}=15V, V_{GS}=10V, I_D=12A$	---	20	---	nC
Q_{gs}	Gate-Source Charge		---	2.5	---	
Q_{gd}	Gate-Drain Charge		---	3.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=15V, V_{GS}=10V, R_L=1.25\Omega$ $R_{GEN}=3\Omega$	---	8	---	ns
T_r	Rise Time		---	5	---	
$T_{d(off)}$	Turn-Off Delay Time		---	20	---	
T_f	Fall Time		---	4	---	
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1\text{MHz}$	---	850	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
t_{rr}	Body Diode Reverse Recovery Time	$I_F=12A, di/dt=100A/\mu s$	---	20	---	ns
Q_{rr}	Body Diode Reverse Recovery Charge		---	8	---	nC
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=1A$	---	---	1	V

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.

N- and P-Channel Enhancement Mode MOSFET
P Channel Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =-10A	---	---	35	mΩ
		V _{GS} =-4.5V, I _D =-8A	---	---	45	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250μA	-1	---	-3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-24V, V _{GS} =0V	---	---	-1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =-5V, I _D =-10A	---	16	---	S
Q _g	Total Gate Charge (10V)	V _{DS} =-15V, V _{GS} =-10V, I _D =-12A	---	18	---	nC
Q _{gs}	Gate-Source Charge		---	2.5	---	
Q _{gd}	Gate-Drain Charge		---	5	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =-15V, V _{GS} =-10V, R _L =1.25Ω R _{GEN} =3Ω	---	11	---	ns
T _r	Rise Time		---	30	---	
T _{d(off)}	Turn-Off Delay Time		---	25	---	
T _f	Fall Time		---	15	---	
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	---	900	---	pF
C _{oss}	Output Capacitance		---	190	---	
C _{rss}	Reverse Transfer Capacitance		---	120	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
t _{rr}	Body Diode Reverse Recovery Time	I _F =-12A, di/dt=100A/μs	---	21	---	ns
Q _{rr}	Body Diode Reverse Recovery Charge		---	13	---	nC
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =-1A	---	---	-1	V