

P-Channel Enhancement Mode Field Effect Transistor

General Description

The CMSA6683 combines advanced trench MOSFET technology with a low resistance package to provide extremely low RDS(ON).

This device is ideal for load switch and battery protection applications.

Features

- Fast switching speed
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-54	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	-37	A
I_{DM}	Pulsed Drain Current	-162	A
EAS	Single Pulse Avalanche Energy ¹	169	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	40	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient(Steady-State)	---	55	$^\circ C/W$
$R_{\theta JC}$	Junction-to-Case	---	3	$^\circ C/W$

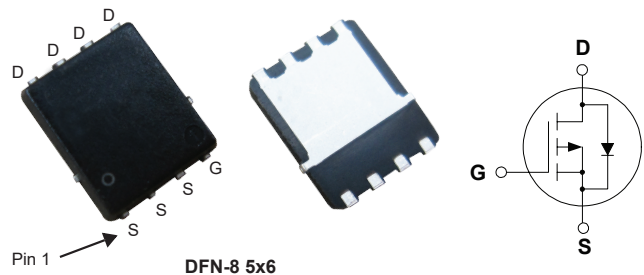
Product Summary

BVDSS	RDSON	ID
-20V	10m Ω	-54A

Applications

- Load Switch
- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA6683	DFN-8 5*6	CMSA6683

P-Channel Enhancement Mode Field Effect Transistor

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{DS}=-4.5V, I_D=-10A$	---	8.7	10	m Ω
		$V_{DS}=-2.5V, I_D=-5A$	---	11	15	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-0.5	---	-1.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-16V, V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V, I_D=-10A$	---	42	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	---	10	---	Ω
Q_g	Total Gate Charge	$V_{DD}=-10V, I_D=-12A$ $V_{GS}=-4.5V$	---	80	---	nC
Q_{gs}	Gate-Source Charge		---	6.5	---	
Q_{gd}	Gate-Drain Charge		---	20	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-10V, V_{GS}=-4.5V$ $R_{GEN}=6\Omega, I_D=-12A$	---	16	---	ns
T_r	Rise Time		---	35	---	
$T_{d(off)}$	Turn-Off Delay Time		---	312	---	
T_f	Fall Time		---	160	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$	---	9000	---	pF
C_{oss}	Output Capacitance		---	820	---	
C_{rss}	Reverse Transfer Capacitance		---	730	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-54	A
I_{SM}	Pulsed Source Current		---	---	-162	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_F=-20A$	---	---	-1.2	V

Note :

1.EAS condition: $T_J=25^{\circ}\text{C}, V_{DD}=15V, V_{GS}=10V, L=0.5mH, I_{AS}=26A$.

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.