

General Description

These P-Channel enhancement mode power field effect transistors use advanced trench technology and design to provide excellent RDS(ON) . This device is suitable for use as a load switch or in PWM 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	-150	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-30	A
I_{DM}	Pulsed Drain Current	-120	A
EAS	Single Pulse Avalanche Energy ¹	648	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	200	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
$R_{\theta JA}$	Junction-to-Ambient	---	40	$^\circ C/W$
$R_{\theta JC}$	Junction-to-Case (Drain)	---	1.5	$^\circ C/W$

Product Summary

BVDSS	RDSON	ID
-150V	78m Ω	-30A

Applications

- DC-DC Converters
- LCD Display inverter
- Power Management in Note book

TO-252/251 Pin Configuration



Type	Package	Marking
CMD5970	TO-252	CMD5970
CMU5970	TO-251	CMU5970

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-10A$	---	---	78	m Ω
		$V_{GS}=-4.5V, I_D=-8A$	---	---	90	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-150V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V, I_D=-10A$	---	23	---	S
Q_g	Total Gate Charge	$V_{DS}=-80V, I_D=-18A$ $V_{GS}=0$ to $-10V$	---	60	---	nC
Q_{gs}	Gate-Source Charge		---	10	---	
Q_{gd}	Gate-Drain Charge		---	20	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-50V, V_{GS}=-10V, R_G=3.3\Omega$ $I_D=-18A, R_D=2.8\Omega$	---	15	---	ns
T_r	Rise Time		---	35	---	
$T_{d(off)}$	Turn-Off Delay Time		---	85	---	
T_f	Fall Time		---	80	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V, f=1\text{MHz}$	---	4000	---	pF
C_{oss}	Output Capacitance		---	250	---	
C_{rss}	Reverse Transfer Capacitance		---	140	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-30	A
I_{SM}	Pulsed Source Current		---	---	-120	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=-20A$	---	---	-1.2	V

Notes:

1.The EAS data shows Max. rating .The test condition is $V_{DS}=-30V, V_{GS}=-10V, L=1\text{mH}, I_{AS}=-36A$.

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

