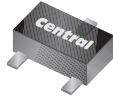


**CMUDM7005**  
**SURFACE MOUNT**  
**N-CHANNEL**  
**ENHANCEMENT-MODE**  
**SILICON MOSFET**



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**ULTRAmi™**



**SOT-523 CASE**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMUDM7005 is an Enhancement-mode N-Channel MOSFET, manufactured by the N-Channel DMOS Process, designed for high speed pulsed amplifier and driver applications. This MOSFET offers Low  $r_{DS(ON)}$  and Low Theshold Voltage.

**MARKING CODE: 5C7**

**FEATURES:**

- ESD Protection up to 2kV
- 300mW Power Dissipation
- Very Low  $r_{DS(ON)}$
- Low Threshold Voltage
- Logic Level Compatible
- Small, SOT-523 Surface Mount Package

**APPLICATIONS:**

- Load/Power Switches
- Power Supply Converter Circuits
- Battery Powered Portable Equipment

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

	<b>SYMBOL</b>		<b>UNITS</b>
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	8.0	V
Continuous Drain Current (Steady State - Note 1)	$I_D$	650	mA
Continuous Source Current (Body Diode)	$I_S$	280	mA
Maximum Pulsed Drain Current	$I_{DM}$	1.3	A
Power Dissipation (Note 1)	$P_D$	300	mW
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

<b>SYMBOL</b>	<b>TEST CONDITIONS</b>	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>	<b>UNITS</b>
$I_{GSSF}, I_{GSSR}$	$V_{GS}=4.5V, V_{DS}=0$			1.0	$\mu\text{A}$
$I_{DSS}$	$V_{DS}=16V, V_{GS}=0$			100	nA
$BV_{DSS}$	$V_{GS}=0, I_D=250\mu\text{A}$	20			V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.5		1.1	V
$V_{SD}$	$V_{GS}=0, I_S=200\text{mA}$			1.1	V
$r_{DS(ON)}$	$V_{GS}=4.5V, I_D=600\text{mA}$		0.14	0.23	$\Omega$
$r_{DS(ON)}$	$V_{GS}=2.5V, I_D=500\text{mA}$		0.2	0.275	$\Omega$
$r_{DS(ON)}$	$V_{GS}=1.8V, I_D=350\text{mA}$			0.7	$\Omega$
$r_{DS(ON)}$	$V_{GS}=1.5V, I_D=40\text{mA}$			9.5	$\Omega$
$Q_{g(tot)}$	$V_{DS}=10V, V_{GS}=4.5V, I_D=500\text{mA}$		1.58		nC
$Q_{gs}$	$V_{DS}=10V, V_{GS}=4.5V, I_D=500\text{mA}$		0.17		nC
$Q_{gd}$	$V_{DS}=10V, V_{GS}=4.5V, I_D=500\text{mA}$		0.24		nC

Notes: (1) Mounted on 2 inch square FR-4 PCB with copper mounting pad area of 1.13in<sup>2</sup>

R3 (27-September 2011)

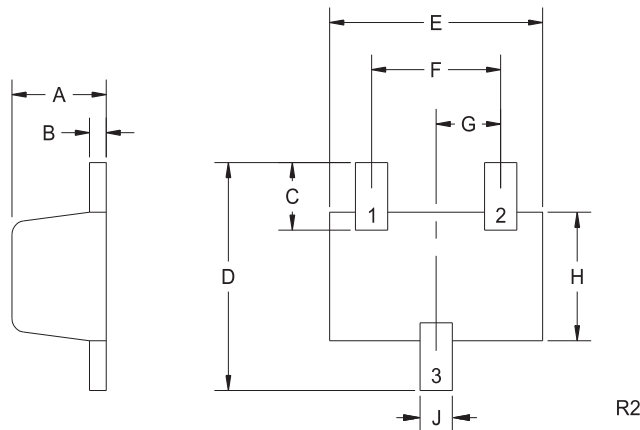
**CMUDM7005**  
**SURFACE MOUNT**  
**N-CHANNEL**  
**ENHANCEMENT-MODE**  
**SILICON MOSFET**



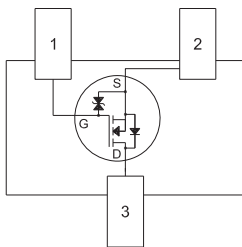
**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	UNITS
gFS	$V_{DS}=10\text{V}$ , $I_D=400\text{mA}$	1.0		S
$C_{rss}$	$V_{DS}=16\text{V}$ , $V_{GS}=0$ , $f=1.0\text{MHz}$		18	pF
$C_{iss}$	$V_{DS}=16\text{V}$ , $V_{GS}=0$ , $f=1.0\text{MHz}$		100	pF
$C_{oss}$	$V_{DS}=16\text{V}$ , $V_{GS}=0$ , $f=1.0\text{MHz}$		16	pF
$t_{on}$	$V_{DD}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=200\text{mA}$ , $R_G=10\Omega$		10	ns
$t_{off}$	$V_{DD}=10\text{V}$ , $V_{GS}=4.5\text{V}$ , $I_D=200\text{mA}$ , $R_G=10\Omega$		25	ns

**SOT-523 CASE - MECHANICAL OUTLINE**



**PIN CONFIGURATION**  
(Bottom View)



**LEAD CODE:**

- 1) Gate
- 2) Source
- 3) Drain

**MARKING CODE: 5C7**

SYMBOL	DIMENSIONS		DIMENSIONS	
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.023	0.031	0.58	0.78
B	0.002	0.008	0.04	0.20
C	0.013	0.021	0.34	0.54
D	0.059	0.067	1.50	1.70
E	0.059	0.067	1.50	1.70
F	0.035	0.043	0.90	1.10
G	0.020		0.50	
H	0.031	0.039	0.78	0.98
J	0.010	0.014	0.25	0.35

SOT-523 (REV: R2)

R3 (27-September 2011)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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