

**CMPDM8120**  
**SURFACE MOUNT**  
**P-CHANNEL**  
**ENHANCEMENT-MODE**  
**SILICON MOSFET**



**SOT-23 CASE**



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPDM8120 is an Enhancement-mode P-Channel Field Effect Transistor, manufactured by the P-Channel DMOS Process, designed for high speed pulsed amplifier and driver applications. This MOSFET offers low  $r_{DS(ON)}$  and low threshold voltage.

**MARKING CODE: C8120**

**FEATURES:**

- Low  $r_{DS(ON)}$
- Low threshold voltage
- Logic level compatibility
- Small SOT-23 package

**APPLICATIONS:**

- Load/Power switches
- Power supply converter circuits
- Battery powered portable equipment

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

Drain-Source Voltage
Gate-Source Voltage
Continuous Drain Current (Steady State)
Continuous Drain Current, $t \leq 5.0\text{s}$
Continuous Source Current (Body Diode)
Maximum Pulsed Drain Current, $t_p=10\mu\text{s}$
Maximum Pulsed Source Current, $t_p=10\mu\text{s}$
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance

**SYMBOL**

SYMBOL		UNITS
$V_{DS}$	20	V
$V_{GS}$	8.0	V
$I_D$	860	mA
$I_D$	950	mA
$I_S$	360	mA
$I_{DM}$	4.0	A
$I_{SM}$	4.0	A
$P_D$	350	mW
$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$
$\theta_{JA}$	357	$^\circ\text{C/W}$

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

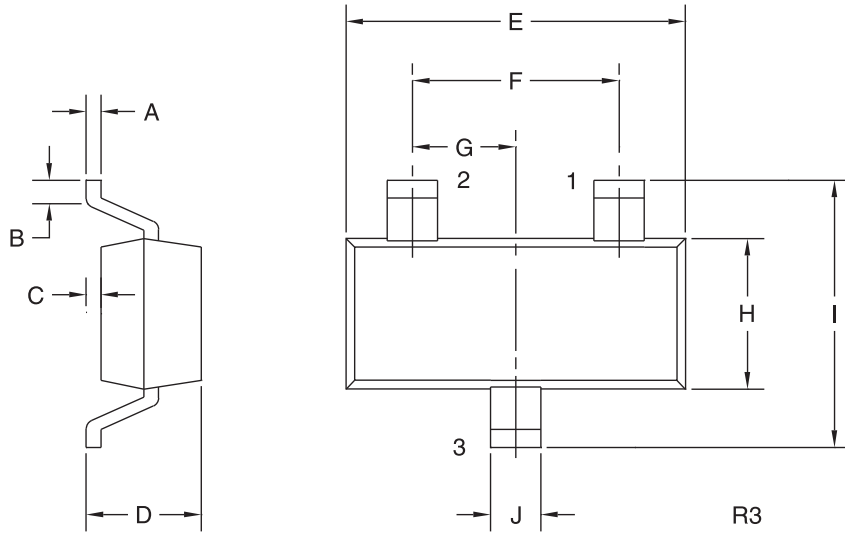
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{GSSF}, I_{GSSR}$	$V_{GS}=8.0\text{V}, V_{DS}=0$		1.0	50	nA
$I_{DSS}$	$V_{DS}=20\text{V}, V_{GS}=0$		5.0	500	nA
$BV_{DSS}$	$V_{GS}=0, I_D=250\mu\text{A}$	20	24		V
$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.45	0.76	1.0	V
$V_{SD}$	$V_{GS}=0, I_S=360\text{mA}$			0.9	V
$r_{DS(ON)}$	$V_{GS}=4.5\text{V}, I_D=0.95\text{A}$		85	150	$\text{m}\Omega$
$r_{DS(ON)}$	$V_{GS}=4.5\text{V}, I_D=0.77\text{A}$		85	142	$\text{m}\Omega$
$r_{DS(ON)}$	$V_{GS}=2.5\text{V}, I_D=0.67\text{A}$		130	200	$\text{m}\Omega$
$r_{DS(ON)}$	$V_{GS}=1.8\text{V}, I_D=0.2\text{A}$		190	240	$\text{m}\Omega$
$Q_g(\text{tot})$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=1.0\text{A}$		3.56		nC
$Q_{gs}$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=1.0\text{A}$		0.36		nC
$Q_{gd}$	$V_{DS}=10\text{V}, V_{GS}=4.5\text{V}, I_D=1.0\text{A}$		1.52		nC
$g_{FS}$	$V_{DS}=10\text{V}, I_D=810\text{mA}$	2.0			S
$C_{rss}$	$V_{DS}=16\text{V}, V_{GS}=0, f=1.0\text{MHz}$		80		pF
$C_{iss}$	$V_{DS}=16\text{V}, V_{GS}=0, f=1.0\text{MHz}$		200		pF
$C_{oss}$	$V_{DS}=16\text{V}, V_{GS}=0, f=1.0\text{MHz}$		60		pF
$t_{on}$	$V_{DD}=10\text{V}, V_{GS}=4.5\text{V}, I_D=950\text{mA}, R_G=6\Omega$		20		ns
$t_{off}$	$V_{DD}=10\text{V}, V_{GS}=4.5\text{V}, I_D=950\text{mA}, R_G=6\Omega$		25		ns

R2 (2-August 2011)

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**SOT-23 CASE - MECHANICAL OUTLINE**



**LEAD CODE:**

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

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<b>DIMENSIONS</b>				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.003	0.007	0.08	0.18
B	0.006	-	0.15	-
C	-	0.005	-	0.13
D	0.035	0.043	0.89	1.09
E	0.110	0.120	2.80	3.05
F	0.075		1.90	
G	0.037		0.95	
H	0.047	0.055	1.19	1.40
I	0.083	0.098	2.10	2.49
J	0.014	0.020	0.35	0.50

SOT-23 (REV: R3)

R2 (2-August 2011)