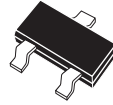




**CMPT3820**

**SURFACE MOUNT  
VERY LOW  $V_{CE(SAT)}$   
NPN SILICON TRANSISTOR**



**SOT-23 CASE**

**Central™  
Semiconductor Corp.**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPT3820 is a very low  $V_{CE(SAT)}$  NPN Transistor, designed for applications where size and efficiency are prime requirements. Packaged in an industry standard SOT-23, this device brings updated electrical specifications and characteristics suitable for the most demanding designs.

**MARKING CODE: 38C**

**APPLICATIONS:**

- DC/DC Converters
- Voltage Clamping
- Protection Circuits
- Battery powered Cell Phones, Pagers, Digital Cameras, PDAs, Laptops, etc.

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

Collector-Base Voltage	
Collector-Emitter Voltage	
Emitter-Base Voltage	
Continuous Collector Current	
Peak Collector Current	
Base Current	
Power Dissipation	
Operating and Storage Junction Temperature	
Thermal Resistance	

**FEATURES:**

- Device is **Halogen Free** by design
- High Current ( $I_C=1.0\text{A}$ )
- $V_{CE(SAT)}=0.28\text{V MAX @ } I_C=1.0\text{A}$
- SOT-23 surface mount package
- Complementary PNP device **CMPT7820**

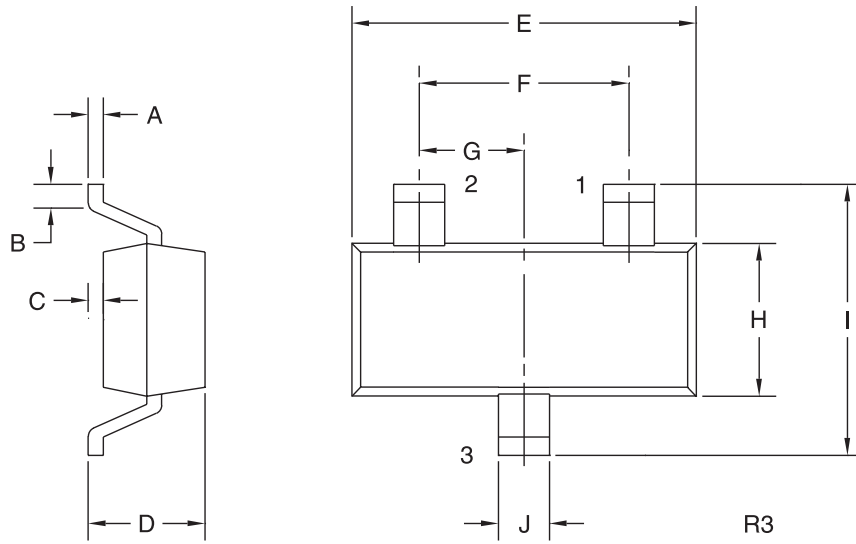
SYMBOL		UNITS
$V_{CBO}$	80	V
$V_{CEO}$	60	V
$V_{EBO}$	5.0	V
$I_C$	1.0	A
$I_{CM}$	2.0	A
$I_B$	300	mA
$P_D$	350	mW
$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$
$\theta_{JA}$	357	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CBO}$	$V_{CB}=60\text{V}$		100	nA
$I_{EBO}$	$V_{EB}=5.0\text{V}$		100	nA
$BV_{CBO}$	$I_C=100\mu\text{A}$	80		V
$BV_{CEO}$	$I_C=10\text{mA}$	60		V
$BV_{EBO}$	$I_E=100\mu\text{A}$	5.0		V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=1.0\text{mA}$		0.115	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.15	V
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=100\text{mA}$		0.28	V
$V_{BE(SAT)}$	$I_C=1.0\text{A}, I_B=50\text{mA}$		1.1	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$		0.9	V
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	200		
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=500\text{mA}$	200		
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$	100		
$f_T$	$V_{CE}=10\text{V}, I_C=50\text{mA}$	150		MHz
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		10	pF

R0 (25-March 2009)

**SOT-23 CASE - MECHANICAL OUTLINE**



**LEAD CODE:**

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

**MARKING CODE: 38C**

DIMENSIONS				
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)