### **CMPT3820**

## SURFACE MOUNT VERY LOW V<sub>CE</sub>(SAT) NPN SILICON TRANSISTOR



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## **DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPT3820 is a very low  $V_{\text{CE}(SAT)}$  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** 



**SOT-23 CASE** 

### **APPLICATIONS:**

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

#### **FEATURES:**

- Device is *Halogen Free* by design
- High Current (IC=1.0A)
- V<sub>CE(SAT)</sub>=0.28V MAX @ I<sub>C</sub>=1.0A
- SOT-23 surface mount package
- Complementary PNP device CMPT7820

MAXIMUM RATINGS: (T <sub>A</sub> =25°C)	SYMBOL		UNITS
Collector-Base Voltage	VCBO	80	V
Collector-Emitter Voltage	VCEO	60	V
Emitter-Base Voltage	V <sub>EBO</sub>	5.0	V
Continuous Collector Current	IC	1.0	Α
Peak Collector Current	I <sub>CM</sub>	2.0	Α
Continuous Base Current	ΙΒ	300	mA
Power Dissipation	$P_{D}$	350	mW
Operating and Storage Junction Temperature	T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C
Thermal Resistance	ΘΙΔ	357	°C/W

### **ELECTRICAL CHARACTERISTICS:** (T<sub>A</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I <sub>CBO</sub>	V <sub>CB</sub> =60V		100	nA
I <sub>EBO</sub>	V <sub>EB</sub> =5.0V		100	nA
BV <sub>CBO</sub>	I <sub>C</sub> =100μA	80		V
BVCEO	I <sub>C</sub> =10mA	60		V
BVEBO	I <sub>E</sub> =100μA	5.0		V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =100mA, I <sub>B</sub> =1.0mA		0.115	V
VCE(SAT)	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA		0.15	V
VCE(SAT)	I <sub>C</sub> =1.0A, I <sub>B</sub> =100mA		0.28	V
V <sub>BE</sub> (SAT)	I <sub>C</sub> =1.0A, I <sub>B</sub> =50mA		1.1	V
V <sub>BE</sub> (ON)	$V_{CE}$ =5.0V, $I_{C}$ =1.0A		0.9	V
h <sub>FE</sub> `´	$V_{CE}$ =5.0V, $I_{C}$ =1.0mA	200		
h <sub>FE</sub>	$V_{CE}$ =5.0V, $I_{C}$ =500mA	200		
h <sub>FE</sub>	$V_{CE}$ =5.0V, $I_{C}$ =1.0A	100		
f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =50mA	150		MHz
C <sub>ob</sub>	$V_{CB}$ =10V, $I_E$ =0, f=1.0MHz		10	pF

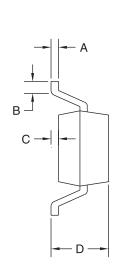
R1 (1-February 2010)

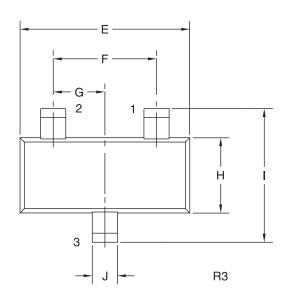
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# **SOT-23 CASE - MECHANICAL OUTLINE**





# LEAD CODE:

- 1) Base 2) Emitter 3) Collector

MARKING CODE: 38C

DIM	ENIOLONI							
	DIMENSIONS							
INCHES		MILLIMETERS						
MIN	MAX	MIN	MAX					
0.003	0.007	0.08	0.18					
0.006	-	0.15	-					
-	0.005	-	0.13					
0.035	0.043	0.89	1.09					
0.110	0.120	2.80	3.05					
0.075		1.90						
0.037		0.95						
0.047	0.055	1.19	1.40					
0.083	0.098	2.10	2.49					
0.014	0.020	0.35	0.50					
	MIN 0.003 0.006 - 0.035 0.110 0.0 0.047 0.083	MIN MAX 0.003 0.007 0.006 0.005 0.035 0.043 0.110 0.120 0.075 0.037 0.047 0.055 0.083 0.098	MIN MAX MIN 0.003 0.007 0.08 0.006 - 0.15 - 0.005 - 0.035 0.043 0.89 0.110 0.120 2.80 0.075 1. 0.037 0. 0.047 0.055 1.19 0.083 0.098 2.10					

SOT-23 (REV: R3)

### **OUTSTANDING SUPPORT AND SUPERIOR SERVICES**



#### 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

#### **DESIGNER SUPPORT/SERVICES**

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

- Free guick 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

#### REQUESTING PRODUCT PLATING

- 1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
- 2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

#### **CONTACT US**

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