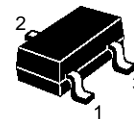


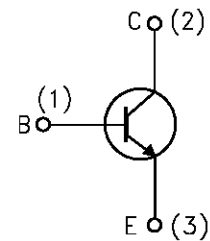
## SMALL SIGNAL NPN TRANSISTOR

Type	Marking
SO918	N10

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- SMALL SIGNAL VHF AMPLIFICATION AND OSCILLATOR APPLICATIONS


**SOT-23**

### INTERNAL SCHEMATIC DIAGRAM



SC08960

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	30	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	15	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	3	V
$I_C$	Collector Current	0.05	A
$P_{tot}$	Total Dissipation at $T_c = 25\text{ }^\circ\text{C}$	200	mW
$T_{stg}$	Storage Temperature	-65 to 150	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	150	$^\circ\text{C}$

## SO918

### THERMAL DATA

$R_{thj-amb}$	Thermal Resistance Junction-Ambient	Max	550	$^{\circ}\text{C}/\text{W}$
$R_{thj-SR}$	Thermal Resistance Junction-Substrate	Max	400	$^{\circ}\text{C}/\text{W}$

• Mounted on a ceramic substrate area = 15 x 15 x 0.7 mm

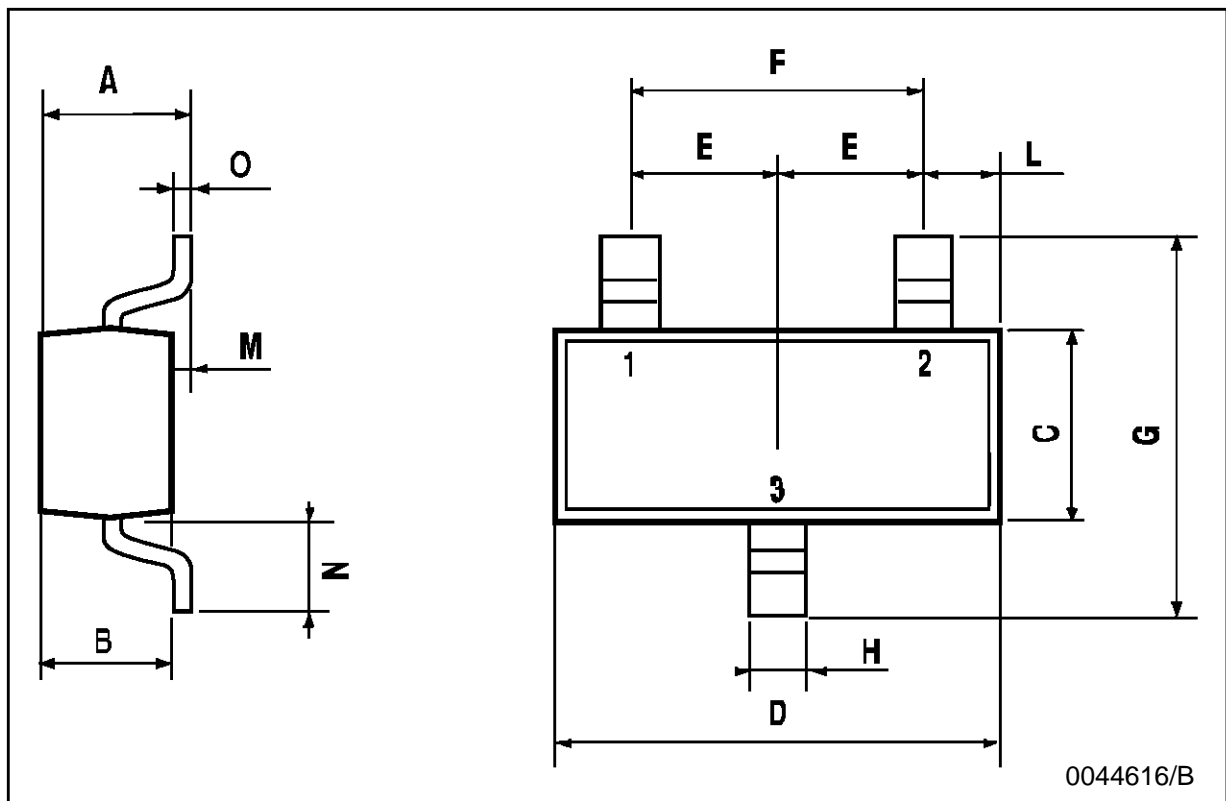
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CB} = 15\text{ V}$			25	nA
$V_{(BR)CEO}^*$	Collector-Emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = 3\text{ mA}$	15			V
$V_{(BR)CBO}^*$	Collector-Base Breakdown Voltage ( $I_E = 0$ )	$I_C = 1\text{ }\mu\text{A}$	30			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_C = 0$ )	$I_E = 10\text{ }\mu\text{A}$	3			V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ mA}$ $I_B = 1\text{ mA}$			0.4	V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	$I_C = 10\text{ mA}$ $I_B = 1\text{ mA}$			1	V
$h_{FE}^*$	DC Current Gain	$I_C = 3\text{ mA}$ $V_{CE} = 1\text{ V}$ $I_C = 10\text{ mA}$ $V_{CE} = 1\text{ V}$	20 50			
$f_T$	Transition Frequency	$I_C = 4\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 100\text{ MHz}$	600			MHz
$C_{eb}$	Emitter-Base Capacitance	$I_C = 0$ $V_{EB} = 0.5\text{ V}$ $f = 1\text{ MHz}$			2	pF
$C_{cb}$	Collector-Base Capacitance	$I_E = 0$ $V_{CB} = 0\text{ V}$ $f = 1\text{ MHz}$			3	pF
$C_{cb}$	Collector-Base Capacitance	$I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$			1.7	pF
NF	Noise Figure	$I_C = 1\text{ mA}$ $V_{CE} = 6\text{ V}$ $f = 60\text{ MHz}$ $R_S = 400\text{ }\Omega$			6	dB
$G_p$	Power Gain	$I_C = 6\text{ mA}$ $V_{CE} = 12\text{ V}$ $f = 200\text{ MHz}$	15			dB

\* Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle  $\leq 2\%$

**SOT-23 MECHANICAL DATA**

DIM.	mm			mils		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	0.85		1.1	33.4		43.3
B	0.65		0.95	25.6		37.4
C	1.20		1.4	47.2		55.1
D	2.80		3	110.2		118
E	0.95		1.05	37.4		41.3
F	1.9		2.05	74.8		80.7
G	2.1		2.5	82.6		98.4
H	0.38		0.48	14.9		18.8
L	0.3		0.6	11.8		23.6
M	0		0.1	0		3.9
N	0.3		0.65	11.8		25.6
O	0.09		0.17	3.5		6.7



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