2C918HV Chip **NPN Silicon Small-Signal Transistor**

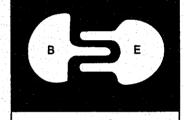
- ...designed for VHF operation in tuned amplifier/oscillator applications.
- Small-Signal Power Gain 15 dB Min @ 200 MHz
- Noise Figure 6.0 dB Max @ 60 MHz



 Small–Signal Power Gain — 15 dB Min @ 200 MHz Noise Figure — 6.0 dB Max @ 60 MHz 					
MAXIMUM RATINGS					
Ballan	Symbol	Value	Unit		
Rating					
	VCEO	15	Vdc		
Collector-Emitter Voltage		15 30			
Collector-Emitter Voltage Collector-Base Voltage	VCEO		Vdc		
Collector-Emitter Voltage Collector-Base Voltage Emitter-Base Voltage	VCEO VCBO	30	Vdc Vdc		
Collector-Emitter Voltage Collector-Base Voltage Emitter-Base Voltage Collector Current Power Dissipation @ TA = 25°C Derate above 25°C	VCEO VCBO VEBO	30 3.0	Vdc Vdc Vdc		

ELECTRICAL CHARACTERISTICS (T	A = 25°C unless ot	herwise noted	i.)	
Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage* (IC = 3.0 mAdc)	V _(BR) CEO	15		Vdc
Collector-Base Breakdown Voltage (IC = 1.0 µAdc)	V _(BR) CBO	30	-	Vdc
Emitter-Base Breakdown Voltage (IC = 10 µAdc)	V(BR)EBO	3.0		Vdc
Collector Cutoff Current (V _{CB} = 25 Vdc) (V _{CB} = 25 Vdc, T _A = 150°C)	ICBO		10 1.0	nAdc µAdc
Emitter Cutoff Current (VEB = 2.5 Vdc)	IEBO		10	nAdc

^{*} Pulsed. Pulse Width 250 to 350 μs, Duty Cycle 1.0 to 2.0%.



Physical Characteristics:

Die Size -10 x 15 mils Die Thickness -4-8 mils **Bond Pad Size:** Emitter - 2.0 x 4.0 mils Base — 2.0 x 4.0 mils **Back Metal** 20 kÅ Gold (Nom) Top Metal 15 kÅ Alum. (Nom) Back Side = Collector

(continued)

2C918HV

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS			1 + 1	<u>-</u>
DC Current Gain (I _C = 500 μAdc, V _{CE} = 10 Vdc) (I _C = 3.0 mAdc, V _{CE} = 1.0 Vdc) (I _C = 10 mAdc, V _{CE} = 10 Vdc) (I _C = 3.0 mAdc, V _{CE} = 1.0 Vdc, T _A = -55°C)	hFE	10 20 20 10	200 — —	_
Collector-Emiter Saturation Voltage (IC = 10 mAdc, IB = 1.0 mAdc)	VCE(sat)		0.4	Vdc
Base-Emitter Saturation Voltage (IC = 10 mAdc, IB = 1.0 mAdc)	VBE(sat)		1.0	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Small-Signal Current Transfer Ratio, Magnitude (IC = 4.0 mAdc, VCE = 10 Vdc, f = 100 MHz)	lh _{fe} i	6.0	18	_
Output Capacitance (V _{CB} = 0, f = 100 kHz – 1.0 MHz) (V _{CB} = 10 Vdc, f = 100 kHz – 1.0 MHz)	C _{obo}		3.0 1.7	pF
Input Capacitance (VEB = 0.5 Vdc, f = 100 kHz - 1.0 MHz)	C _{ibo}		2.0	pF
Noise Figure (V _{CE} = 6.0 Vdc, I _C = 1.0 mAdc, f = 60 MHz)	NF	<u> </u>	6.0	dB
FUNCTIONAL TESTS (VCC = 28 Vdc, f = 400 MHz)				
Collector-Base Time Constant (VCB = 10 Vdc, IE = -4.0 mAdc, f = 79.8 MHz)	rb′Cc	-	25	ps
Power Gain, Tuned Circuit Power Gain (V _{CB} = 12 Vdc, I _C = 6.0 mAdc, f = 200 MHz)	G _{pe}	15		dB
Tuned Oscillator Power Output (VCB = 15 Vdc, IC = 8.0 mAdc, f = 500 MHz)	Po	30		mW
Collector Efficiency	η	25		%

ASSURANCE TESTING (Pre/Post Burn-In)					
Characteristics Tested	Symbol	Initial and End Point Limits			
		Min	Max	Unit	
Collector Cutoff Current (VCB = 25 Vdc)	ICBO	-	10	nAdc	
DC Current Gain (IC = 3.0 mAdd, VCE = 1.0 Vdc)	hFE	20	200	_	

Delta from Pre-Burn-in Measured Values		Min	Max	
Delta Collector Cutoff Current	ΔiCBO		±100 or ±5.0 whichever is greater	% of Initial Value nAdc
Delta DC Current Gain	ΔhFE	_	±20	% of Initial Value

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