

TECHNICAL DATA
DATA SHEET 188, REV –
Formerly part number SHD4314

SMALL SIGNAL TRANSISTOR

DESCRIPTION: SINGLE NPN SMALL SIGNAL TRANSISTOR IN A CERAMIC LCC-3 PACKAGE.

MAXIMUM RATINGS

(ALL RATINGS ARE AT $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE SPECIFIED).

RATING	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Collector-Emitter Voltage (V_{CE0})	-	-	-	150	Vdc
Collector-Base Voltage (V_{CBO})	-	-	-	150	Vdc
Emitter-Base Voltage (V_{EBO})	-	-	-	6.0	Vdc
Collector Current-Continuous (I_C)	-	-	-	300	mAdc
Total Power Dissipation $P_D @ T_C = 25^\circ\text{C}$	-	-	-	4.375	W
Derate above 25°C	-	-	-	25	mW/ $^\circ\text{C}$
Thermal Resist. Junction to Case $R\theta_{JC}$	-	-	-	40	$^\circ\text{C}/\text{W}$
Operating Junction and Storage Temp. (T_J & T_{stg})	-	-65	-	+200	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

(ALL ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$)

OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage $V_{(BR)CEO}$ (1)	$I_C = 10\text{mAdc}, I_B = 0$	150	-	-	Vdc
Collector-Base Breakdown Voltage $V_{(BR)CBO}$	$I_C = 10\mu\text{Adc}, I_E = 0$	150	-	-	Vdc
Emitter-Base Breakdown Voltage $V_{(BR)EBO}$	$I_E = 10\mu\text{Adc}, I_C = 0$	6.0	-	-	Vdc
Collector Cutoff Current (I_{CBO})	$V_{CB} = 75\text{Vdc}, I_E = 0$	-	-	0.05	μAdc
		-	-	50	μAdc
	$T_A = 150^\circ\text{C}$				
Emitter Cutoff Current (I_{EBO})	$V_{EB} = 4.0\text{Vdc}, I_C = 0$	-	-	25	nAdc
ON CHARACTERISTICS					
DC Current Gain (h_{FE})	$I_C = 0.1\text{ mAdc}$	35	-	-	-
	$I_C = 1.0\text{ mAdc}$	50	-	-	-
	$I_C = 10\text{ mAdc}$ (1)	75	-	-	-
	$I_C = 150\text{ mAdc}$ (1)	100	-	-	300
	$I_C = 300\text{ mAdc}$ (1)	20	-	-	-
SMALL-SIGNAL CHARACTERISTICS					
Current Gain, Bandwidth (2) (f_T)	$V_{CE} = 20\text{Vdc}, I_C = 20\text{mAdc},$ $f = 100\text{MHz}$	150	-	-	MHz
Output Capacitance (C_{obo})	$V_{CB} = 10\text{Vdc}, I_E = 0,$ $f = 1.0\text{ MHz}$	-	-	8.0	pF

SENSITRON

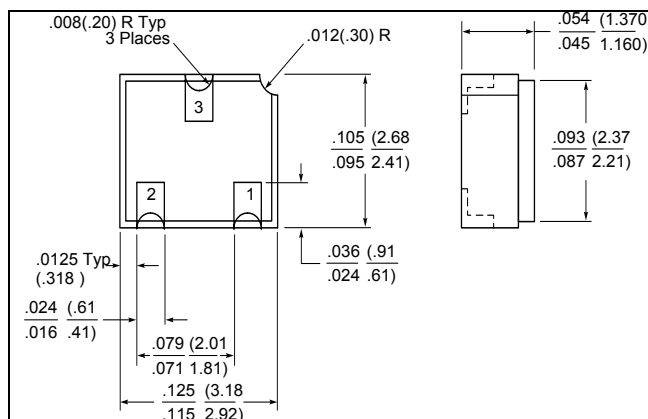
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RATING	CONDITIONS	MIN.	TYP.	MAX.	UNITS
SMALL-SIGNAL CHARACTERISTICS (Continued)					
Input Capacitance (C_{ibo})	$V_{EB} = 0.5 \text{ Vdc}$, $I_C = 0$, $f = 1.0 \text{ MHz}$	-	-	80	pF
Delay Time (t_d)	$(I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$, $V_{CC} = 100 \text{ Vdc}$, $V_{BE(off)} = -2.0 \text{ Vdc}$)	-	20	-	ns
Rise Time (t_r)	$(I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$, $V_{CC} = 100 \text{ Vdc}$, $V_{BE(off)} = -2.0 \text{ Vdc}$)	-	35	-	ns
Storage Time (t_s)	$(I_C = 150 \text{ mAdc}$, $I_{B2} = 15 \text{ mAdc}$, $V_{CC} = 100 \text{ Vdc}$)	-	800	-	ns
Fall Time (t_f)	$(I_C = 150 \text{ mAdc}$, $I_{B2} = 15 \text{ mAdc}$, $V_{CC} = 100 \text{ Vdc}$)	-	80	-	ns

(1) Pulsed. Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

(2) $f_T = I_{h_{fe1}} \cdot f_{test}$

MECHANICAL DIMENSIONS - in inches / mm

**LCC-3**

PIN 1 - BASE
PIN 2 - EMITTER
PIN 3 - COLLECTOR

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