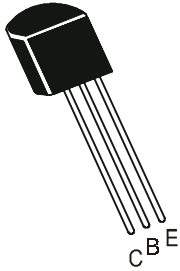


**NPN SILICON PLANAR EPITAXIAL TRANSISTORS**

**CIL 187**



**TO-92  
Plastic Package**

**Intended For Low Voltage , High Current Output Pair Application**

**Complementary CIL 188**

**ABSOLUTE MAXIMUM RATINGS ( Ta=25°C unless specified otherwise)**

DESCRIPTION	SYMBOL	VALUE			UNIT
		MIN	TYP	MAX	
Collector Emitter Voltage ( $V_{BE} = 0$ )	$V_{CES}$		25		V
Collector Emitter Voltage ( Open Base)	$V_{CEO}$		15		V
Emitter Base Voltage ( Open Collector)	$V_{EBO}$		5		V
Collector Current	$I_C$		700		mA
Collector Current ( Peak Value )	$I_{CM}$		1		A
Base Current	$I_B$		100		mA
Base Current (Peak Value)	$I_{BM}$		200		mA
Total Power Dissipation @ Ta=25°C	$P_{TA}$		625		mW
Operating And Storage Junction Temperature Range	$T_j, T_{stg}$		-55 to +150		°C

**ELECTRICAL CHARACTERISTICS ( Ta=25°C unless specified otherwise)**

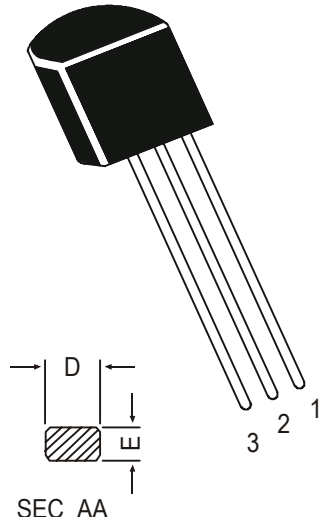
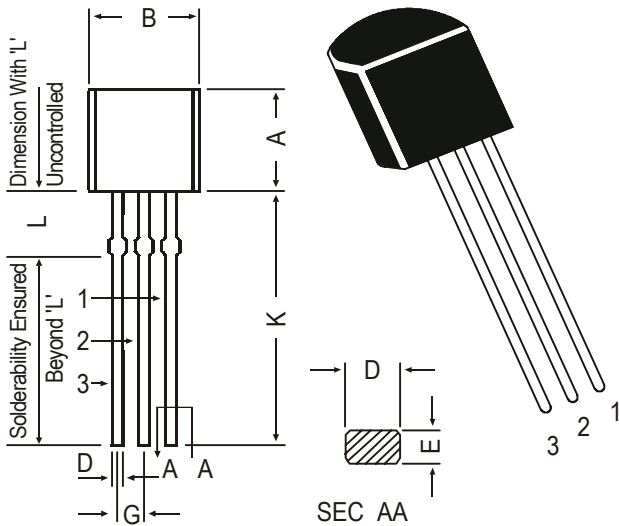
DESCRIPTION	SYMBOL	TEST CONDITION	VALUE			UNIT
			MIN	TYP	MAX	
Collector Cut off Current	$I_{CBO}$	$V_{CB}=25V, I_E = 0$			10	$\mu A$
					1	mA
Emitter Cut off Current	$I_{EBO}$	$V_{EB}=5V, I_C = 0$ $T_j = 150^\circ C$			10	$\mu A$
Base Cut on Voltage	$V_{BE(on)}$	$I_C = 1A, V_{CE} = 1V$			1	V
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1A, I_B = 100mA$			0.5	V
DC Current Gain	$h_{FE}$	$V_{CE} = 10V, I_C = 5mA$	50			
			100		300	
			40			

**DYNAMIC CHARACTERISTICS**

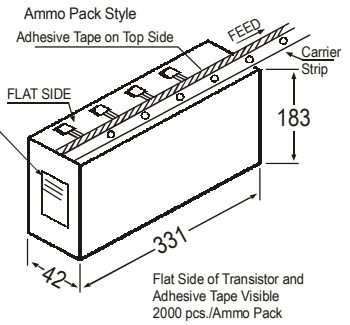
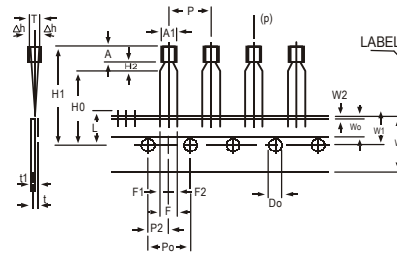
Transition Frequency	$f_T$	$I_C = 10mA, V_{CE} = 2V$		270		MHz
Collector Capacitance	$C_c$	$I_E = 0, V_{CB} = 5V,$ $f = 1MHz$		10		pF
			<b>CIL187</b>			
			<b>CIL188</b>		30	

TO-92 Plastic Package

TO-92 Transistors on Tape and Ammo Pack



MECHANICAL DATA



All dimensions in mm unless specified otherwise

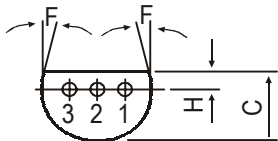
ITEM	SYMBOL	SPECIFICATION				REMARKS
		MIN.	NOM.	MAX.	TOL.	
BODY WIDTH	A1	4.0		4.8		
BODY HEIGHT	A	4.8		5.2		
BODY THICKNESS	T	3.9		4.2		
PITCH OF COMPONENT	P		12.7		±1	
FEED HOLE PITCH	Po		12.7		±0.3	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
FEED HOLE CENTRE TO COMPONENT CENTRE	P2		6.35		±0.4	TO BE MEASURED AT BOTTOM OF CLINCH
DISTANCE BETWEEN OUTER LEADS	F		5.08		+0.6 -0.2	
COMPONENT ALIGNMENT	Δh		0	1		AT TOP OF BODY
TAPE WIDTH	W		18		±0.5	
HOLD-DOWN TAPE WIDTH	Wo		6		±0.2	
HOLE POSITION	W1		9		+0.7 -0.5	
HOLD-DOWN TAPE POSITION	W2		0.5		±0.2	
LEAD WIRE CLINCH HEIGHT	Ho		16		±0.5	
COMPONENT HEIGHT	H1			23.25		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	Do		4		±0.2	
TOTAL TAPE THICKNESS	t			1.2		t1 0.3 - 0.6
LEAD - TO - LEAD DISTANCE F1,	F2		2.54		+0.4 -0.1	
CLINCH HEIGHT	H2			3		
PULL - OUT FORCE	(P)	6N				

NOTES

1. MAXIMUM ALIGNMENT DEVIATION BETWEEN LEADS NOT TO BE GREATER THAN 0.2 mm.
2. MAXIMUM NON-CUMULATIVE VARIATION BETWEEN TAPE FEED HOLES SHALL NOT EXCEED 1 mm IN 20 PITCHES.
3. HOLDDOWN TAPE NOT TO EXCEED BEYOND THE EDGE(S) OF CARRIER TAPE AND THERE SHALL BE NO EXPOSURE OF ADHESIVE.
4. NO MORE THAN 3 CONSECUTIVE MISSING COMPONENTS ARE PERMITTED.
5. A TAPE TRAILER, HAVING AT LEAST THREE FEED HOLES ARE REQUIRED AFTER THE LAST COMPONENT.
6. SPLICES SHALL NOT INTERFERE WITH THE SPROCKET FEED HOLES.

DIM	MIN.	MAX.
A	4.32	5.33
B	4.45	5.20
C	3.18	4.19
D	0.41	0.55
E	0.35	0.50
F	5 DEG	
G	1.14	1.40
H	1.14	1.53
K	12.70	—
L	1.982	2.082

All dimensions in mm.



PIN CONFIGURATION

1. EMITTER
2. BASE
3. COLLECTOR

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-92 Bulk	1K/polybag	200 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2K	17" x 15" x 13.5"	32K	12.5 kgs

### **Disclaimer**

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