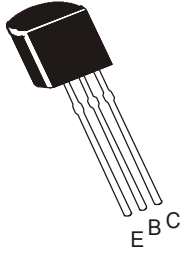


**NPN SILICON HIGH SPEED SWITCHING TRANSISTORS**

**PN2369**

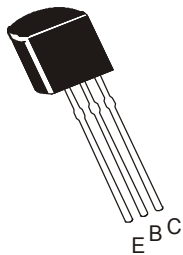


**TO-92  
Plastic Package**

**LOW POWER FOR HIGH SPEED SWITCHING APPLICATIONS**

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

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector Emitter Voltage	$V_{CEO}$	15	V
Collector Base Voltage	$V_{CBO}$	40	V
Collector Emitter Voltage ( $V_{BE}=0$ )	$V_{CES}$	40	V
Emitter Base Voltage	$V_{EBO}$	4.5	V
Collector Current Peak	$I_{CM}$	500	mA
Power Dissipation @ Ta=25°C	$P_D$	625	mW
Operating and Storage Junction Temperature Range	$T_j, T_{stg}$	-55 to +150	°C
<b>THERMAL RESISTANCE</b>			
Junction to Ambient in free air	$R_{th(j-a)}$	200	°C/W



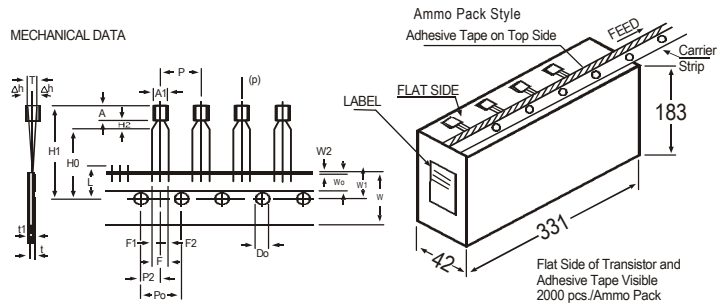
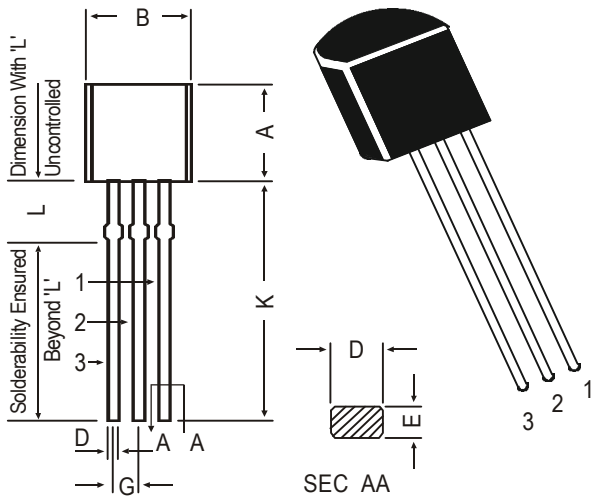
## ELECTRICAL CHARACTERISTICS (Ta=25°C unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	VALUE		UNIT
			MIN	MAX	
Collector Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=10mA, I_B=0$	15		V
Collector Emitter Breakdown Voltage	$BV_{CES}$	$I_C=10\mu A, V_{BE}=0$	40		V
Collector Base Breakdown Voltage	$BV_{CBO}$	$I_C=10\mu A, I_E=0$	40		V
Emitter Base Breakdown Voltage	$BV_{EBO}$	$I_E=10\mu A, I_C=0$	4.5		V
Collector Leakage Current	$I_{CBO}$	$V_{CB}=20V, I_E=0$		400	nA
Collector Leakage Current	$I_{CEO}$	$V_{CB}=20V, T_a=125^\circ C$		30	$\mu A$
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=1mA$		0.25	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=1mA$	0.7	0.85	V
DC Current Gain	$h_{FE}$	$I_C=10mA, V_{CE}=1V$	40	120	
		$I_C=100mA, V_{CE}=2V^*$	20		
		$I_C=10mA, V_{CE}=1V,$ $T_a=125^\circ C$	20		
<b>DYNAMIC CHARACTERISTICS</b>					
Output Capacitance	$C_c$	$I_E=0, V_{CB}=5V$ $f=1MHz$		4	pF
Small Signal Current Gain	$ h_{fe} $	$V_{CE}=10V, I_C=10mA$ $f=100MHz$	5		MHz
<b>SWITCHING CHARACTERISTICS</b>					
Turn on Time	$t_{on}$	$I_C=10mA, I_{B1}=3mA, V_{CC}=3V$		12	ns
Turn off Time	$t_{off}$	$I_C=10mA, I_{B1}=3mA, V_{CC}=3V,$ $I_{B2}=1.5mA$		18	ns
Storage Time	$t_s$	$I_C=10mA, I_{B1}=10mA = I_{B2}$		13	ns

\*Pulse Condition: Length  $\leq 300ms$ , Duty Cycle  $\leq 2\%$ .

TO-92 Plastic Package

TO-92 Transistors on Tape and Ammo Pack



All dimensions in mm unless specified otherwise

ITEM	SYMBOL	SPECIFICATION			REMARKS
		MIN.	NOM.	MAX. TOL.	
BODY WIDTH	A1	4.0		4.8	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH TO BE MEASURED AT BOTTOM OF CLINCH
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	
FEED HOLE CENTRE TO COMPONENT CENTRE	P2	6.35		±0.4	
DISTANCE BETWEEN OUTER LEADS	F	5.08		+0.6 -0.2	AT TOP OF BODY
COMPONENT ALIGNMENT	Δh	0	1		
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	t1 0.3 - 0.6
TOTAL TAPE THICKNESS	t		1.2		
LEAD - TO - LEAD DISTANCE F1	F1	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. COLLECTOR
  2. BASE
  3. EMITTER

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

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Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.  
Telephone + 91-11-579 6150 Fax + 91-11-579 9569, 579 5290  
e-mail sales@cdil.com www.cdil.com

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