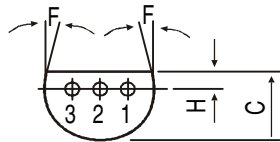
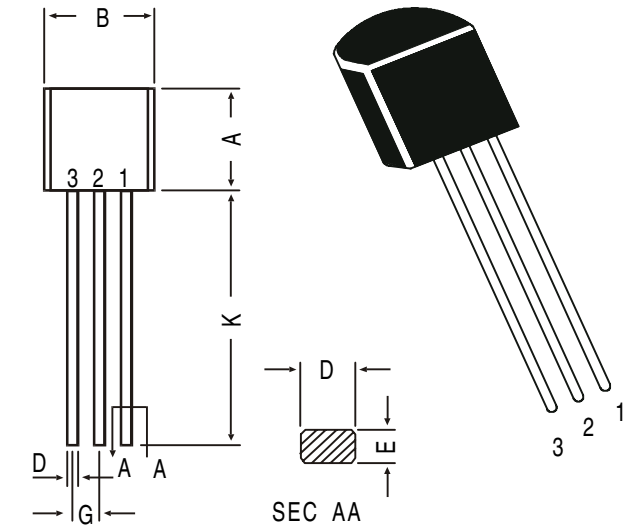


DESCRIPTION	SYMBOL	TEST CONDITION	2222	2222A	UNIT
Collector -Emitter Voltage	VCEO	IC=10mA, IB=0	>30	>40	V
Collector -Base Voltage	VCBO	IC=10uA, IE=0	>60	>75	V
Emitter-Base Voltage	VEBO	IE=10uA, IC=0	>5.0	>6.0	V
Collector-Cut off Current	ICBO	VCB=50V, IE=0	<10	-	nA
		VCB=60V, IE=0	-	<10	nA
		Ta=150 deg C			
		VCB=50V, IE=0	<10	-	uA
	ICEX	VCB=60V, IE=0	-	<10	uA
		VCE=60V, VBE=3V	-	<10	nA
		VCE=10V, IB=0	<10	<10	nA
Emitter-Cut off Current	IEBO	VEB=3V, IC=0	-	<10	nA
Base-Cut off Current	IBEX	VCE=60V, VBE=3V	-	<20	nA
Collector Emitter Saturation Voltage	VCE(Sat)*	IC=150mA, IB=15mA	<0.4	<0.3	V
		IC=500mA, IB=50mA	<1.6	<1.0	V
Base Emitter Saturation Voltage	VBE(Sat) *	IC=150mA, IB=15mA	<1.3	0.6-1.2	V
		IC=500mA, IB=50mA	<2.6	<2.0	V

ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)			PN2222, PN2222A		
DESCRIPTION	SYMBOL	TEST CONDITION	2222	2222A	UNIT
DC Current Gain	hFE	IC=0.1mA,VCE=10V	>35	>35	
		IC=1mA,VCE=10V	>50	>50	
		IC=10mA,VCE=10V	>75	>75	
		IC=10mA,VCE=10V	-	>35	
		Ta=55 deg C			
		IC=150mA,VCE=10V	100-300	100-300	
		IC=150mA,VCE=1V	>50	>50	
		IC=500mA,VCE=10V	>30	>40	
DYNAMIC CHARACTERISTICS					
Small Signal Current Gain	hfe	ALL f=1kHz			
		IC=1mA, VCE=10V	-	50-300	
Input Impedence	hie	IC=10mA, VCE=10V	-	75-375	kohms
		IC=1mA, VCE=10V	-	2.0-8.0	
Voltage Feedback Ratio	hre	IC=10mA, VCE=10V	-	0.25-1.25	
		IC=1mA, VCE=10V	-	8.0 x 10-4	
Out put Adimttance	hoe	IC=10mA, VCE=10V	-	4.0	umhos
		IC=1mA, VCE=10V	-	5.0-35	
Collector Base Time Constant	rb'Cc	IC=10mA, VCE=10V	-	25-200	
		IE=20mA, VCB=20V	-	<150	
Noise Figure	NF	f=31.8MHz			ps
		IC=100uA, VCE=10V	-	<4.0	
Rs=1kohms, f=1kHz					
DYNAMIC CHARACTERISTICS					
Transistors Frequency	ft	IC=20mA, VCE=20V	>250	>300	MHz
Out-Put Capacitance	Cob	f=100MHz			pF
		VCB=10V, IE=0	<8.0	<8.0	
Input Capacitance	Cib	f=1MHz			pF
		VEB=0.5V, IC=0	<30	<25	
f=1MHz					
SWITCHING Time					
Delay time	td	IC=150mA,IB1=15mA		<10	ns
Rise time	tr	VCC=30V,VBE=0.5V	-	<25	ns
Storage time	ts	IC=150mA, IB1=		<225	ns
Fall time	tf	IB2=15mA, VCC=30V	-	<60	ns

*Pulse Condition: Length =300us, Duty Cycle=2%

TO-92 Plastic Package



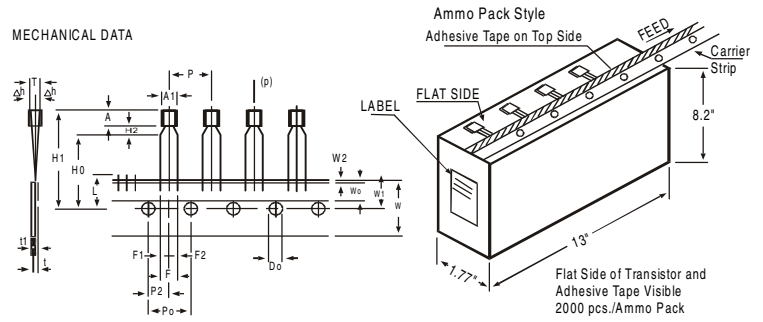
PIN CONFIGURATION

1. COLLECTOR
2. BASE
3. EMITTER

All dimensions in mm.

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	—

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		
BODY HEIGHT	A	4.8		5.2		
BODY THICKNESS	T	3.9		4.2		
PITCH OF COMPONENT	P		12.7		±1	
FEED HOLE PITCH	P0		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	W0		6		±0.2	
HOLE POSITION	W1		9		+0.7 -0.5	
HOLD-DOWN TAPE POSITION	W2		0.5		±0.2	
LEAD WIRE CLINCH HEIGHT	H0		16		±0.5	
COMPONENT HEIGHT	H1			23.25		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	D0		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.

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"	5.0K	17" x 15" x 13.5"	80.0K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2.0K	17" x 15" x 13.5"	32.0K	12.5 kgs