

**NPN EPITAXIAL PLANAR DARLINGTON TRANSISTORS**  
**TO-92 RoHS compliant**

**ABSOLUTE MAXIMUM RATINGS.**

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector -Emitter Voltage	VCES	30	V
Collector -Base Voltage	VCBO	30	V
Emitter -Base Voltage	VEBO	10	V
Collector Current -Continuous	IC	500	mA
Power Dissipation @ Ta=25 degC	PD	625	mW
Derate above 25 deg C		5.0	mW./deg C
Power Dissipation @ Tc=25 degC	PD	1.5	W
Derate above 25 deg C		12	mW./deg C
Operating And Storage Junction Temperature Range	Tj, Tstg	-55 to +150	deg C

**THERMAL RESISTANCE**

Junction to Case	Rth(j-c)	83.3	deg C/W
Junction to Ambient	Rth(j-a)	200	deg C/W

**ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)**

DESCRIPTION	SYMBOL	TEST CONDITION	Min	Max	UNIT
Collector -Emitter Voltage	VCES	IC=100uA, IB=0	30	-	V
Collector-Cut off Current	ICBO	VCB=30V, IE=0	-	100	nA
Emitter-Cut off Current	IEBO	VEB=10V, IC=0	-	100	nA
DC Current Gain	hFE*	IC=10mA, VCE=5V	5.0	-	K
			10	-	K
			10	-	K
			20	-	K
Collector Emitter Saturation Voltage	VCE(Sat)*	IC=100mA, IB=0.1mA	-	1.5	V
Base Emitter On Voltage	VBE(on) *	IC=100mA, VCE=5V	-	2.0	V
<b>DYNAMIC CHARACTERISTICS</b>					
Current Gain-Bandwidth Product	ft**	IC=10mA, VCE=5V f=100MHz	125	-	MHz

\*Pulse Test: Pulse Width=300us, Duty Cycle=2%

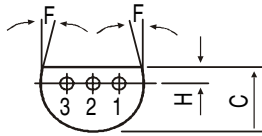
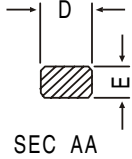
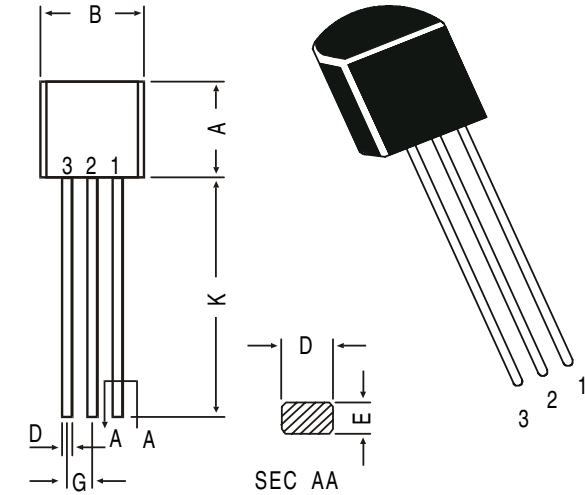
\*\*ft=hfe/\*ftest.

**MARKING:**

KSP13 / MPSA13: "MPSA13"

KSP14 / MPSA14: "MPSA14"

# TO-92 Plastic Package

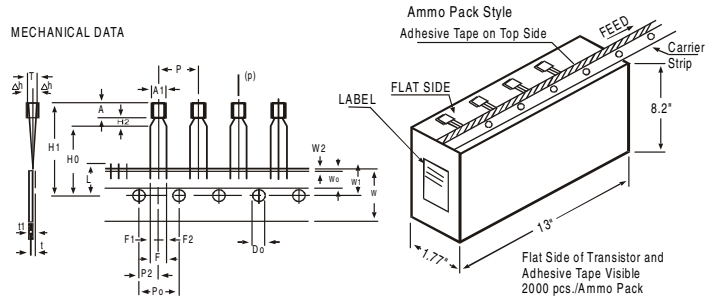


**PIN CONFIGURATION**  
 1. COLLECTOR  
 2. BASE  
 3. EMITTER

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	Po	12.7		±0.3	
FEED HOLE CENTRE TO COMPONENT CENTRE	P2	6.35		±0.4	CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
DISTANCE BETWEEN OUTER LEADS	F	5.08		+0.6 -0.2	TO BE MEASURED AT BOTTOM OF CLINCH
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	6N	3		
PULL - OUT FORCE	(P)				

**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 Data

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



## DISCLAIMER NOTICE

Rectron Inc reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. Rectron Inc or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on RECTRON data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. Rectron Inc does not assume any liability arising out of the application or use of any product or circuit.

Rectron products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of Rectron Inc. Customers using or selling Rectron components for use in such applications do so at their own risk and shall agree to fully indemnify Rectron Inc and its subsidiaries harmless against all claims, damages and expenditures.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Darlington Transistors](#) category:*

*Click to view products by [Rectron](#) manufacturer:*

Other Similar products are found below :

[NJVMJD128T4G](#) [281287X](#) [BDV64B](#) [NJVMJD117T4G](#) [LB1205-L-E](#) [2N6053](#) [MPSA14](#) [TIP140](#) [MPSA13](#) [TIP127L-BP](#) [2N6383](#)  
[ULN2003ACM/TR](#) [2N7371](#) [2N6058](#) [2N6059](#) [2N6051](#) [MJ2501](#) [MJ3001](#) [2SB1560](#) [2SB852KT146B](#) [2SD2560](#) [TIP112TU](#) [BCV27](#)  
[MMBTA13-TP](#) [MMSTA28T146](#) [NTE2557](#) [MPSA29-D26Z](#) [FJB102TM](#) [BSP61H6327XTSA1](#) [BU941ZPFI](#) [2SB1316TL](#) [NTE2350](#) [NTE245](#)  
[NTE246](#) [NTE2649](#) [NTE46](#) [NTE98](#) [ULN2003ADR2G](#) [NTE2344](#) [NTE2349](#) [NTE2405](#) [NTE243](#) [NTE244](#) [NTE247](#) [NTE248](#) [NTE249](#)  
[NTE253](#) [NTE261](#) [NTE262](#) [NTE263](#)