

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*				
	KSP13 / MPSA13	IC=10mA, VCE=5V	5.0	-	K
	KSP14 / MPSA14		10	-	K
	KSP13 / MPSA13	IC=100mA, VCE=5V	10	-	K
	KSP14 / MPSA14		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
DYNAMIC CHARACTERISTICS					
Current Gain-Bandwidth Product	ft**	IC=10mA, VCE=5V f=100MHz	125	-	MHz

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

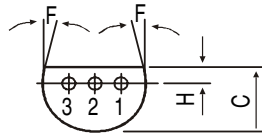
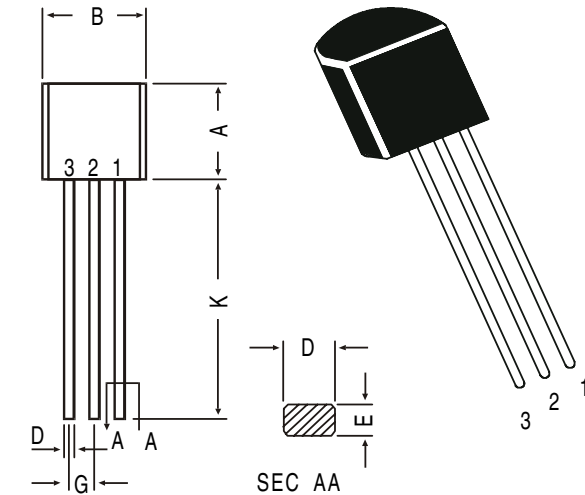
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MARKING:

KSP13 / MPSA13: "MPSA13"

KSP14 / MPSA14: "MPSA14"

TO-92 Plastic Package



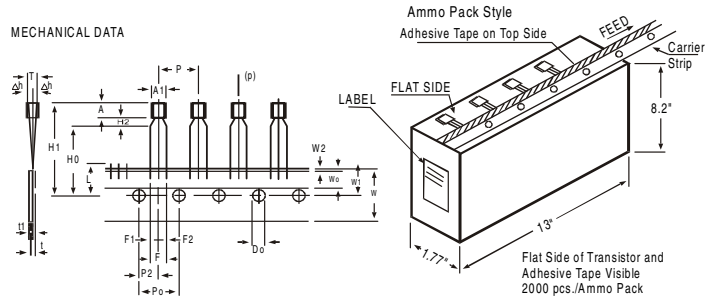
PIN CONFIGURATION

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		CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH
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	TO BE MEASURED AT BOTTOM OF CLINCH
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	t1 0.3 - 0.6
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			
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 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

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