

TO-92 Plastic-Encapsulate Transistors

KTD1146 TRANSISTOR (NPN)

FEATURES

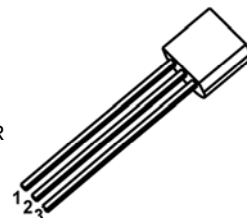
- LOW $V_{CE(sat)}$.
- High Performance at Low Supply Voltage.

TO - 92

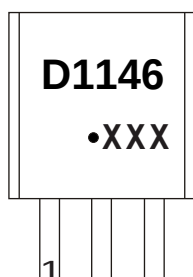
1.EMITTER

2.COLLECTOR

3.BASE



MARKING

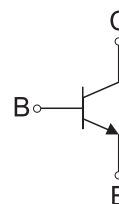


D1146=Device code

Solid dot= Green molding compound device,
if none, the normal device

XXX=Code

Equivalent Circuit



ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
KTD1146	TO-92	Bulk	1000pcs/Bag
KTD1146-TA	TO-92	Tape	2000pcs/Box

MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	20	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current	5	A
P_C	Collector Power Dissipation	0.625	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	200	$^{\circ}\text{C}/\text{W}$
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

$T_a=25^{\circ}\text{C}$ unless otherwise specified

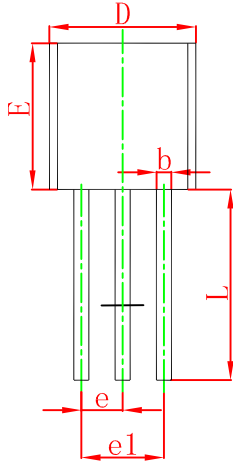
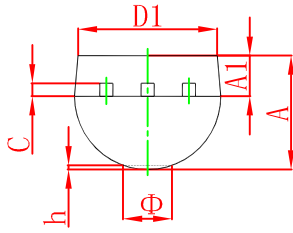
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=0.1\text{mA}, I_E=0$	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=0.01\text{mA}, I_C=0$	7			V
Collector cut-off current	I_{CBO}	$V_{CB}=20\text{V}, I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=7\text{V}, I_C=0$			0.1	μA
DC current gain	h_{FE}^*	$V_{CE}=2\text{V}, I_C=500\text{mA}$	120		700	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3\text{A}, I_B=60\text{mA}$			0.4	V
Transition Frequency	f_T	$V_{CE}=6\text{V}, I_C=50\text{mA}$	20			MHz

*Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycles $\leq 2.0\%$.

CLASSIFICATION OF h_{FE}

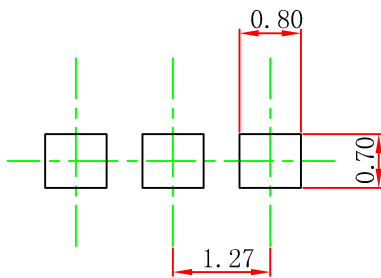
RANK	Q	Y	GR
RANGE	120-240	200-400	350-700

TO-92 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92 Suggested Pad Layout



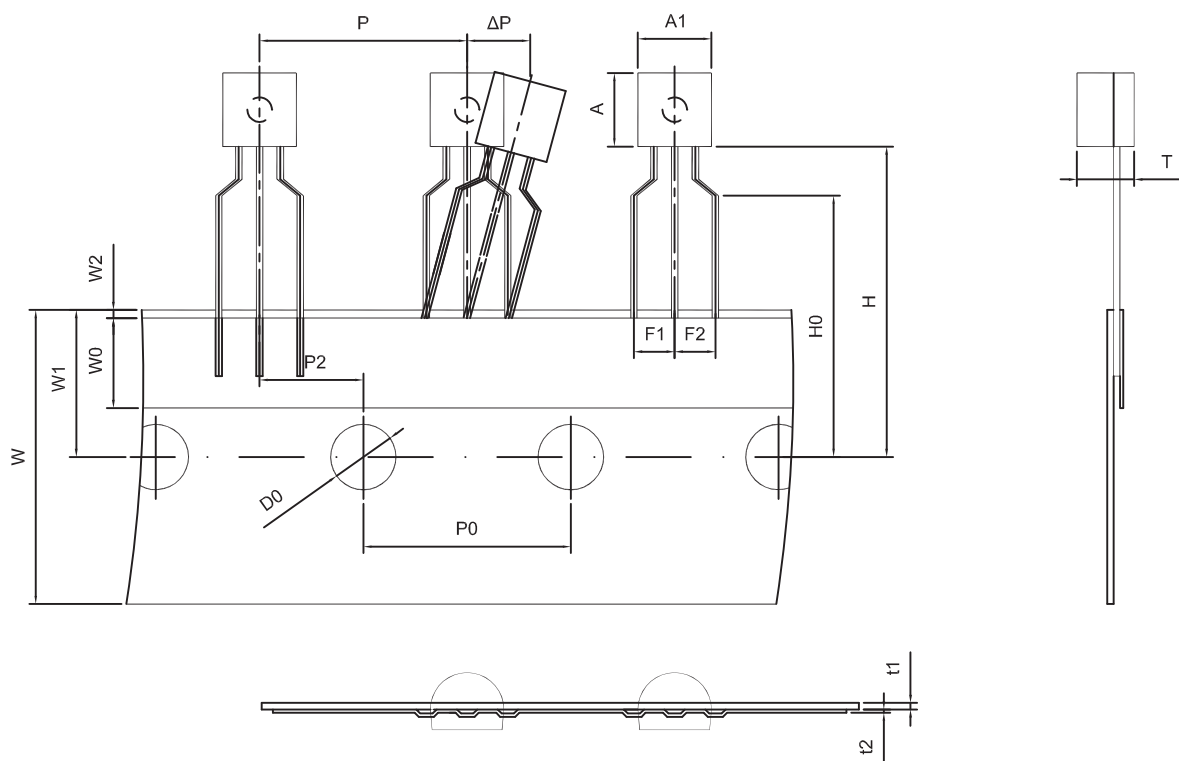
Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

NOTICE

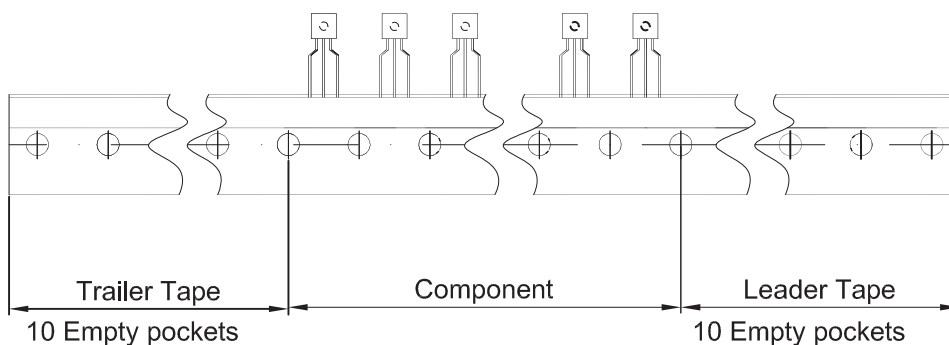
JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

TO-92 PACKAGE TAPING DIMENSION



Dimiensions are in millimeter

A1	A	T	P	P0	P2	F1	F2	W
4.5	4.5	3.5	12.7	12.7	6.35	2.5	2.5	18.0
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0	9.0	1.0 MAX.	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92	2000 pcs	333×162×43	20,000 pcs	350×340×250