

## TO-92 Plastic-Encapsulate Transistors

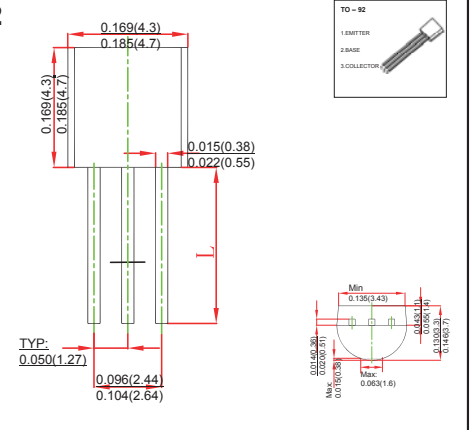
### FEATURES

- Low Frequency Amplifier
- Complementary Pair With 2SA673
- TRANSISTOR (NPN)

### MECHANICAL DATA

- Case style:TO-92 molded plastic
- Mounting position:any

### TO-92



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Symbol	Parameter	#alue	Unit
$V_{CB0}$	Collector-Base Voltage	35	V
$V_{CE0}$	Collector-Emitter Voltage	35	V
$V_{EB0}$	Emitter-Base Voltage	4	V
$I_C$	Collector Current -Continuous	0.5	A
$P_C$	Collector Power Dissipation	400	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	312	°C /W
$T_j$	Junction Temperature	150	°C
$T_{sig}$	Storage Temperature	-55~+150	°C

### ORDERING INFORMATION

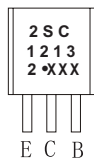
Part Number	Package	Packing Method	Pack Quantity
2SC1213	TO-92	Bulk	1000pcs/Bag
2SC1213-TA	TO-92	Tape	2000pcs/Box

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=0.01mA, I_E=0$	35			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	35			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=0.01mA, I_C=0$	4			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=20V, I_E=0$			0.5	μA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=3V, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=3V, I_C=10mA$	60		320	
	$h_{FE(2)}$	$V_{CE}=3V, I_C=500mA$	10			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=150mA, I_B=15mA$			0.6	V
Base-emitter voltage	$V_{BE}$	$V_{CE}=3V, I_C=10mA$			0.75	V

### CLASSIFICATION OF $h_{FE(1)}$

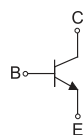
RANK	B	C	D
RANGE	60-120	100-200	160-320

### MARKING

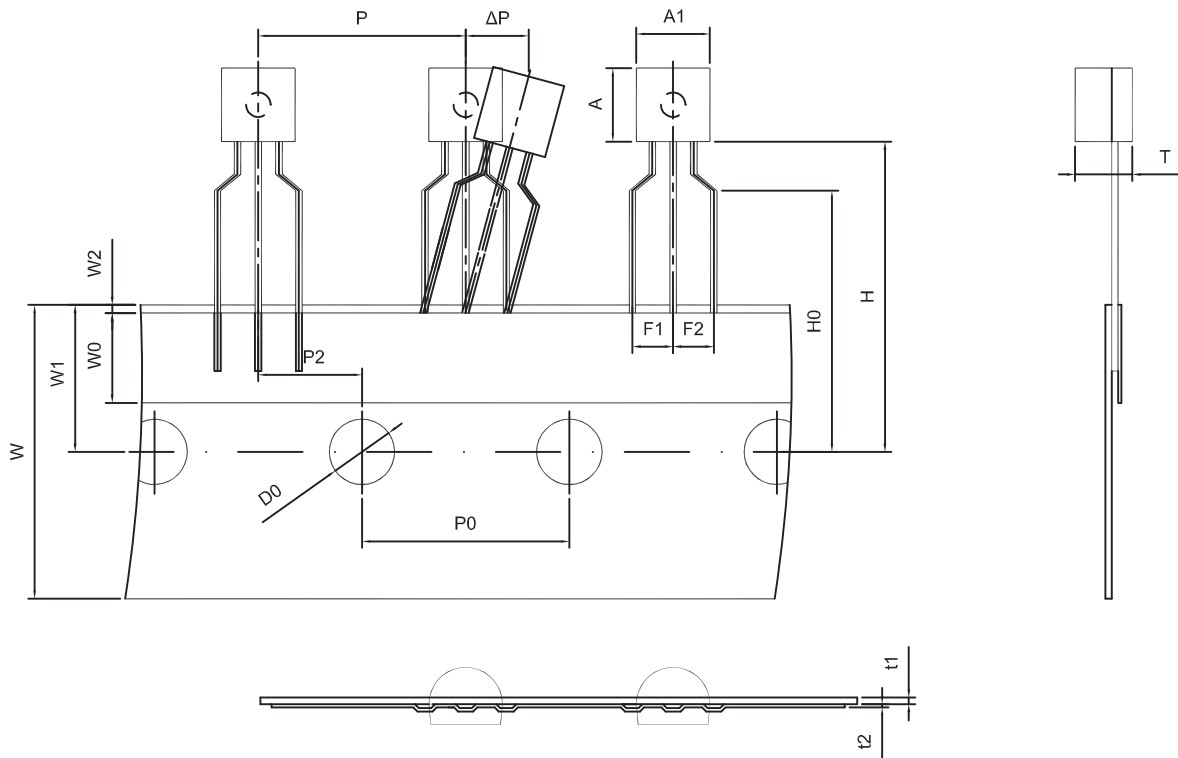


2SC1213=Device code  
 Solid dot=Green molding compound device,  
 if none, the normal device  
 Z=Rank of  $h_{FE}$ ,  
 XXX=Code

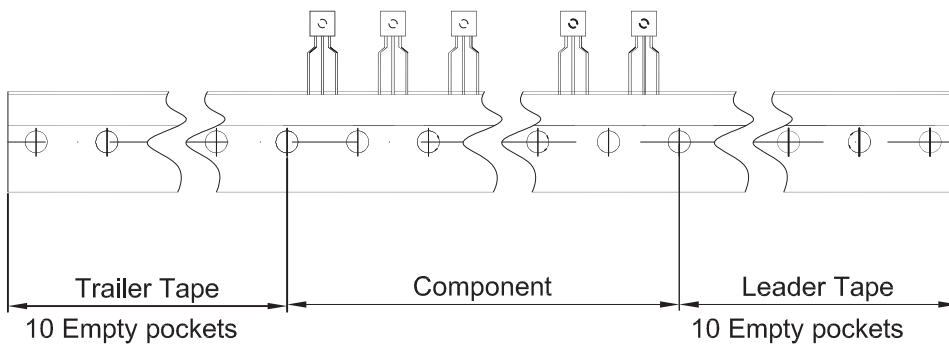
### Equivalent Circuit



TO-92 PACKAGE TAPEING 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