

Description

Silicon NPN transistor in a TO-92 Plastic Package

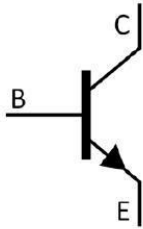
Features

- High P_c and I_c
- Excellent h_{FE} linearity
- Complementary pair with 9012

Applications

Amplifier of portable radios in class B push-pull operation

Symbol	Parameter	Max	Unit
V_{CE0}	collector-emitter voltage	20	V
I_c	collector current (DC)	500	mA

Equivalent Circuit & Pinning


PIN1: Collector

PIN 2: Base

PIN 3: Emitter

 h_{FE} Classifications & Marking

h_{FE} Classifications Symbol	D	E	F	G	H	I
h_{FE} Range	64~91	78~112	96~135	112~166	144~202	188~276

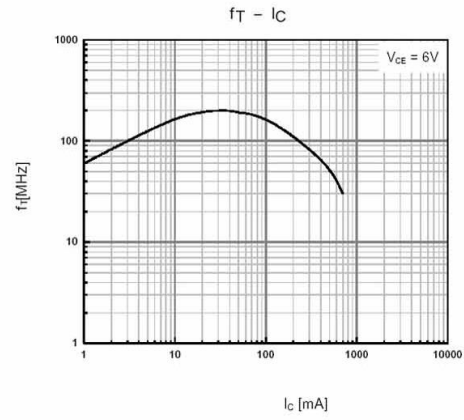
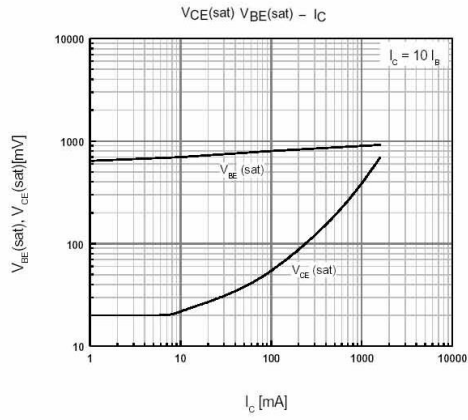
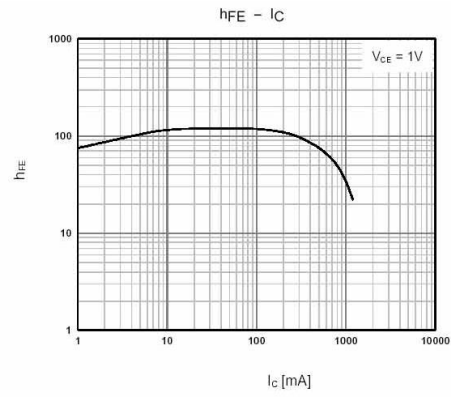
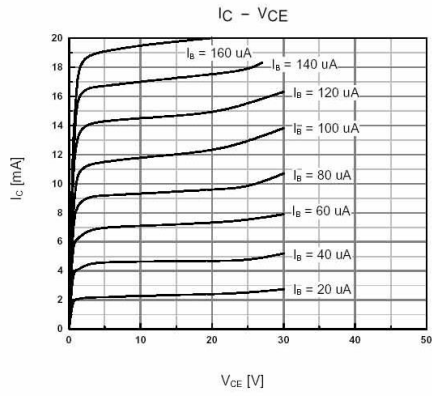
Absolute Maximum Ratings(Ta=25°C)

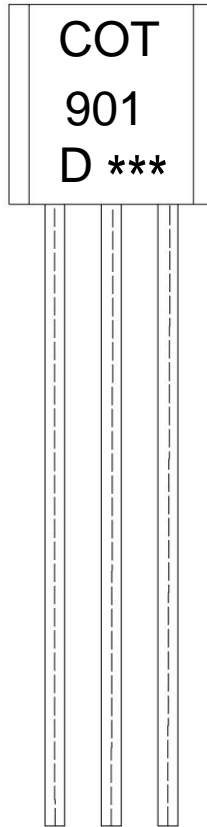
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	40	V
Collector to Emitter Voltage	V_{CEO}	20	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current - Continuous	I_C	500	mA
Base Current - Continuous	I_B	100	mA
Collector Power Dissipation	P_C	625	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55~150	°C

Electrical Characteristic (Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=0.1mA$ $I_E=0$	40			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=1.0mA$ $I_B=0$	20			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=0.1mA$ $I_C=0$	5.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=25V$ $I_E=0$			0.1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=3.0V$ $I_C=0$			0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=1.0V$ $I_C=50mA$	64		276	
	$h_{FE(2)}$	$V_{CE}=1.0V$ $I_C=500mA$	40			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=500mA$ $I_B=50mA$		0.16	0.6	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=500mA$ $I_B=50mA$		0.91	1.2	V
Base to Emitter Voltage	V_{BE}	$V_{CE}=1.0V$ $I_C=10mA$		0.67	0.7	V

Electrical Characteristic Curve



Marking Instructions


Note:

- COT: Company Code.
- 9013: Product Type.
- D: hFE Classifications Symbol.
- ****: Lot No. Code, code change with Lot No

h _{FE} Classifications Symbol	D	E	F	G	H	I
h _{FE} Range	64~91	78~112	96~135	112~166	144~202	188~276

Packaging SPEC.
BULK

Package Type	Units					Dimension (unit: mm3)		
	Units/Bag	Bags/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Bag	Inner Box	Outer Box
TO-92	1,000	10	10,000	5	50,000	135×190	237×172×102	560×245×195
	1,000	10	10,000	10	100,000	135×190	237×172×102	560×245×375

AMMO

Package Type	Units					Dimension (unit: mm3)	
	Units/tape	Tape/Inner Box	Rows/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Inner Box	Outer Box
TO-92	3,000	1	120	10	30,000	328×230×42	480×346×235, 547×407×268

Package Outline Dimensions

TO-92

Unit: mm

