# 2SA1998

FOR LOW FREQUENCY AMPLIFY APPLICATION SILICON PNP EPITAXIAL TYPE

#### DESCRIPTION

2SA1998 is a silicon PNP epitaxial type transistor designed for small type motor drive, solenoid drive and power supply application

### FEATURE

•High collector current  $I_c = -2A$ 

·Low collector to emitter saturation voltage

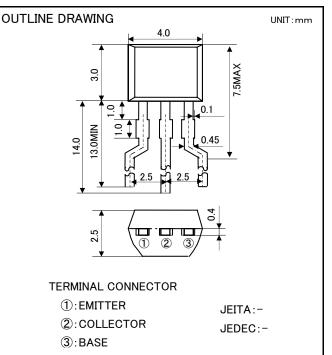
 $V_{CE(sat)} = -0.17V type(@I_{C} = -1A, I_{B} = -50mA)$ 

•High  $h_{FE}$   $h_{FE}$ =150~500

•High collector dissipation Pc=600mW

#### APPLICATION

VTR, deck, small type motor for player, power supply, etc



## MAXIMUM RATING (Ta=25°C)

SYMBOL	PARAMETER	RATING	UNIT
V <sub>CBO</sub>	Collector to Base voltage	-20	V
V <sub>EBO</sub>	Emitter to Base voltage	-6	V
V <sub>CEO</sub>	Collector to Emitter voltage	-20	V
I <sub>CM</sub>	Peak collector current	-3	А
Ι <sub>c</sub>	Collector current	-2	А
Pc	Collector dissipation(Ta=25°C)	600	mW
Tj	Junction temperature	+150	°C
T <sub>stg</sub>	Storage temperature	-55~+150	°C

# MARKING Type Name 9 9 8 LOT No hFE ITEM

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
		TEST CONDITIONS		TYP	MAX	UNIT
V <sub>(BR)CBO</sub>	C to B breakdown voltage	$I_{c}=-10 \mu A, I_{E}=0$	-20	-	-	V
V <sub>(BR)EBO</sub>	E to B breakdown voltage	$I_{E} = -10 \mu$ A, $I_{C} = 0$	-6	-	I	V
V <sub>(BR)CEO</sub>	C to E breakdown voltage	$I_c = -2mA, R_{BE} = \infty$	-20	-	-	V
I <sub>CBO</sub>	Collector cut off current	V <sub>CB</sub> =-16V, I <sub>E</sub> =0	-	-	-0.2	μA
I <sub>EBO</sub>	Emitter cut off current	$V_{EB}$ =-4V, I <sub>c</sub> =0	-	-	-0.2	μA
h <sub>FE</sub>	DC forward current gain	V <sub>cE</sub> =-4V, I <sub>c</sub> =-100mA	150	-	500	-
$V_{CE(sat)1}$	C to E saturation voltage	I <sub>c</sub> =-1A, I <sub>B</sub> =-50mA	-	-0.17	-0.3	V
f <sub>T</sub>	Gain bandwidth product	V <sub>CE</sub> =-2V, I <sub>E</sub> =10mA	-	80	-	MHz
Cob	Collector output capacitance	$V_{CB}$ =-10V, I <sub>E</sub> =0, f=1MHz	-	42	-	pF

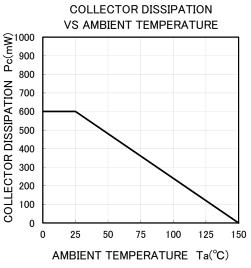
% : It shows hFE classification at right table.

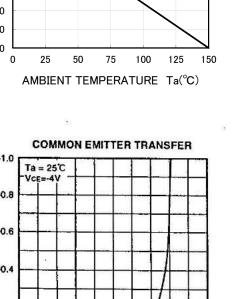
Item	E	F
hFE	150~300	250 <b>~</b> 500

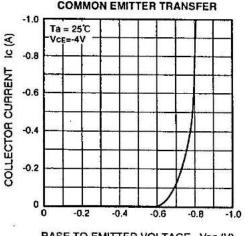
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#### TYPICIAL CHARACTERISTICS

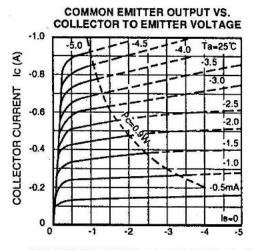






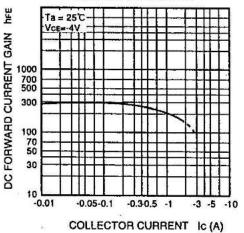
BASE TO EMITTER VOLTAGE VBE (V)

COLLECTOR TO EMITTER SATURATION VOLTAGE VS. € ₩0,2.0 **BASE CURRENT** Ta = 25 C -1.8 -1.8 -1.6 -1.6 -1.4 ó 1c > H H -1.2 -1.0 W H -0.8 -0.3A 14 P-0.6 COLLECTOR -0.4 -0.2 0 -0.1 -0.3-0.5 -1 -3 -5 -10 -30-50 -100 BASE CURRENT IB (mA)

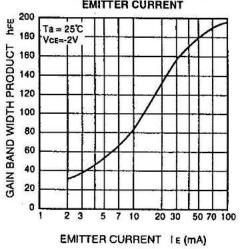


COLLECTOR TO EMITTER VOLTAGE VCE (V)

DC FORWARD CURRENT GAIN VS. COLLECTOR CURRENT



GAIN BAND WIDTH PRODUCT VS. **EMITTER CURRENT** Ta = 25°C

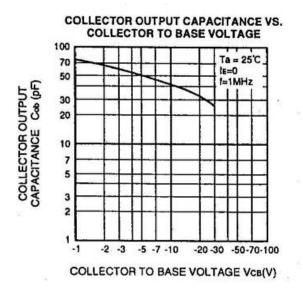


ISAHAYA ELECTRONICS CORPORATION

<SMALL-SIGNAL TRANSISTOR>

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