Ordering number : EN1788B

SANYO Semiconductors
DATA SHEET

2SA1418 / 2SC3648 — High-Voltage Switching, Preriver Applications

PNP / NPN Epitaxial Planar Silicon Transistors

Applications

- Color TV audio output, inverter.

Features

- Adoption of FBET, MBIT processes.
- High breakdown voltage and large current capacity.
- Fast switching speed.
- Ultrasmall size making it easy to provide high-density, small-sized hybrid IC's.

Specifications ( ) : 2SA1418

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)180	V
Collector-to-Emitter Voltage	V_{CEO}		(–)160	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)0.7	A
Collector Current (Pulse)	I_{CP}		(–)1.5	A
Collector Dissipation	PC		500	mW
		Mounted on a ceramic board (250mm²×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Marking 2SA1418 : AD
2SC3648 : CD

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Electrical Characteristics at Ta=25°C

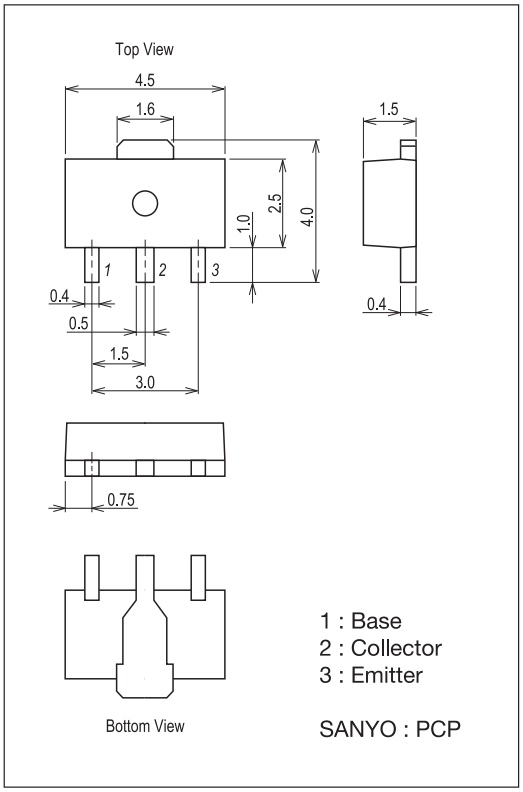
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(-)120V, I_E=0A			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(-)4V, I_C=0A			(-)0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=(-)5V, I_C=(-)100mA	100*		400*	
	$h_{FE}2$	V_{CE}=(-)5V, I_C=(-)10mA	90			
Gain-Bandwidth Product	f_T	V_{CE}=(-)10V, I_C=(-)50mA		120		MHz
Output Capacitance	Cob	V_{CB}=(-)10V, f=1MHz		(11)8		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=(-)250mA, I_B=(-)25mA		(-0.2)0.12	(-0.5)0.4	V
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=(-)250mA, I_B=(-)25mA		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(-)10μA, I_E=0A	(-)180			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(-)1mA, R_{BE}=∞	(-)160			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(-)10μA, I_C=0A	(-)6			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(60)50		ns
Storage Time	t_{stg}	See specified Test Circuit.		(900)1000		ns
Fall Time	t_f	See specified Test Circuit.		(60)60		ns

*: The 2SA1418 / 2SC3648 are classified by 100mA h_{FE} as follows:

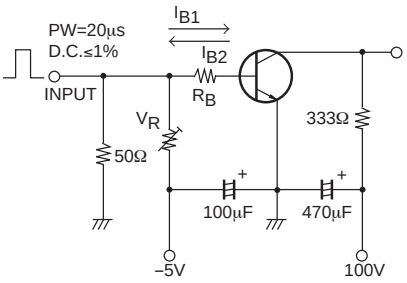
Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

Package Dimensions

unit : mm (typ)
7007B-004



Switching Time Test Circuit



I_C=20I_{B1}=–20I_{B2}=300mA
(For PNP, the polarity is reversed)