Ordering number: EN3972

SANYO

No.3972

2SA1813

PNP Epitaxial Planar Silicon Transistor

Low-Frequency General-Purpose Amp, Driver, Muting Circuit Applications

Features

- Very small-sized package permitting 2SA1813-applied sets to be made smaller and slimmer.
- Adoption of FBET process.
- High DC current gain (h_{FE} = 500 to 1200).
- Low collector-to-emitter saturation voltage ($V_{CE(sat)} \leqq 0.3V$).
- High V_{EBO} ($V_{EBO} \geqq 15V$).

Absolute Maximum Ratings at Ta = 25°C

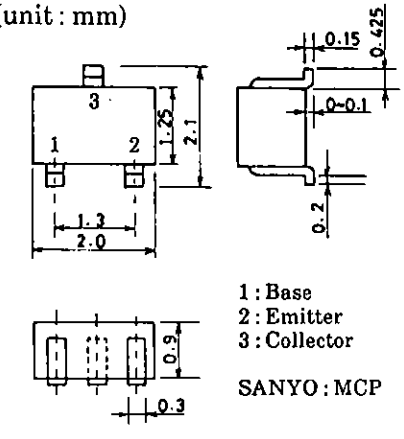
				unit
Collector-to-Base Voltage	V_{CBO}		−30	V
Collector-to-Emitter Voltage	V_{CEO}		−25	V
Emitter-to-Base Voltage	V_{EBO}		−15	V
Collector Current	I_C		−150	mA
Collector Current (Pulse)	I_{CP}		−300	mA
Base Current	I_B		−30	mA
Collector Dissipation	P_C	Mounted on board	200	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = -20V, I_E = 0$			−0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = -10V, I_C = 0$			−0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = -5V, I_C = -1mA$	500	800	1200	
Gain-Bandwidth Product	f_T	$V_{CE} = -10V, I_C = -10mA$		210		MHz
Output Capacitance	Cob	$V_{CB} = -10V, f = 1MHz$		2.6		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = -50mA, I_B = -1mA$		−0.15	−0.3	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = -50mA, I_B = -1mA$		−0.78	−1.1	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0$	−30			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1mA, R_{BE} = \infty$	−25			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	−15			V

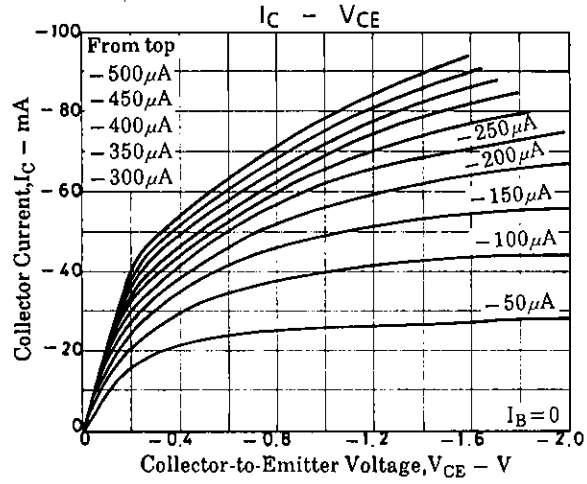
Marking: KS

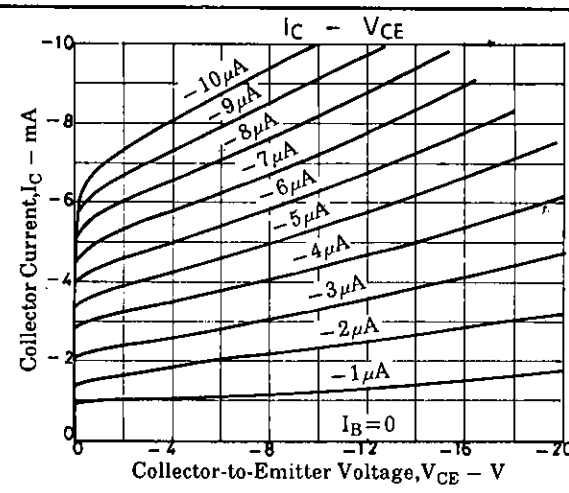
Package Dimensions 2059A
(unit: mm)

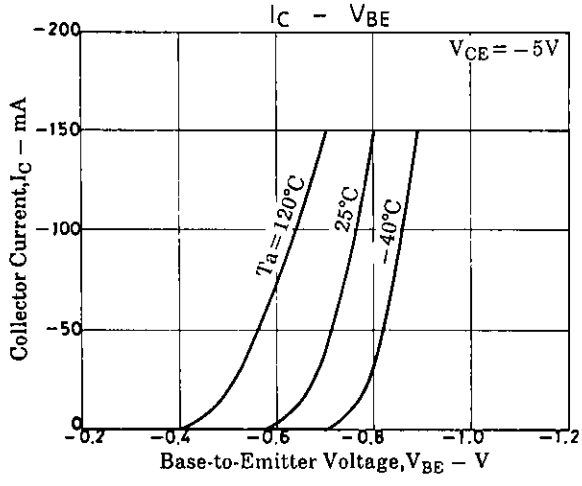


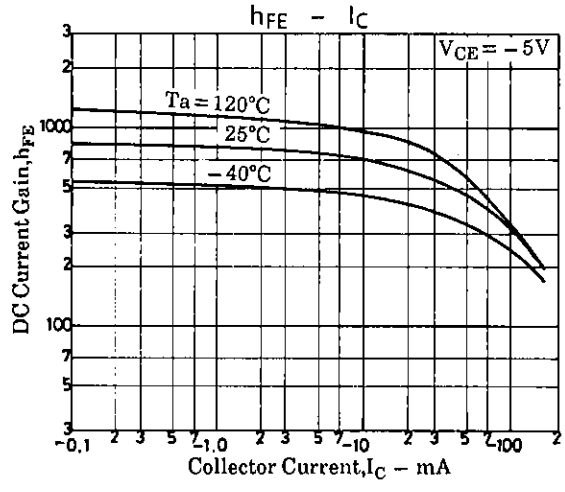
1: Base
2: Emitter
3: Collector

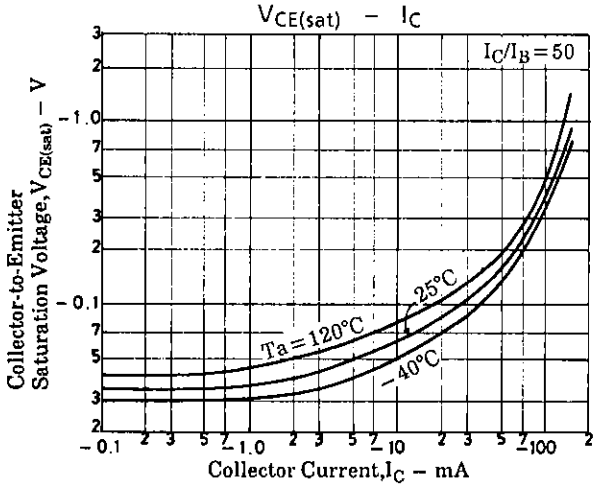
SANYO: MCP

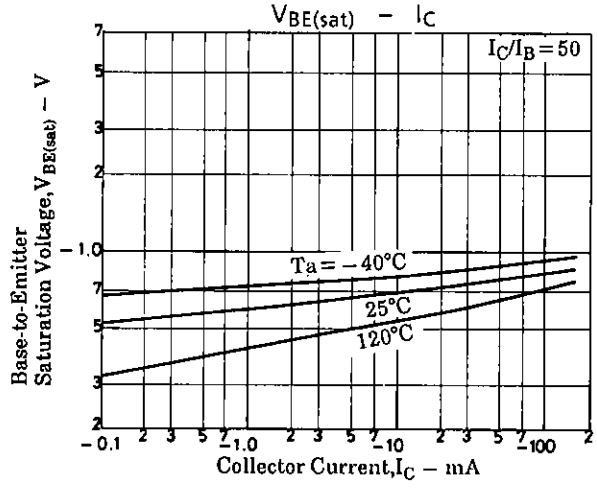

I_C – V_{CE}
From top
–500μA
–450μA
–400μA
–350μA
–300μA
–250μA
–200μA
–150μA
–100μA
–50μA
I_B=0
Collector Current, I_C – mA
Collector-to-Emitter Voltage, V_{CE} – V

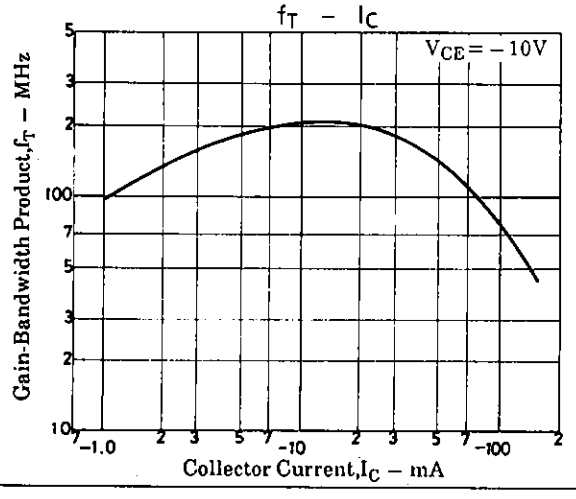

I_C – V_{CE}
–10μA
–9μA
–8μA
–7μA
–6μA
–5μA
–4μA
–3μA
–2μA
–1μA
I_B=0
Collector Current, I_C – mA
Collector-to-Emitter Voltage, V_{CE} – V

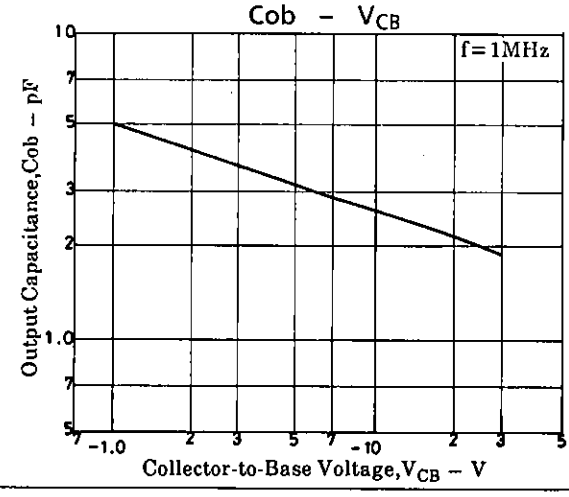

I_C – V_{BE}
V_{CE}=–5V
Ta=120°C
25°C
–40°C
Collector Current, I_C – mA
Base-to-Emitter Voltage, V_{BE} – V


h_{FE} – I_C
V_{CE}=–5V
Ta=120°C
25°C
–40°C
DC Current Gain, h_{FE}
Collector Current, I_C – mA


$V_{CE(sat)}$ – I_C
I_C/I_B=50
Ta=120°C
25°C
–40°C
Collector-to-Emitter Saturation Voltage, $V_{CE(sat)}$ – V
Collector Current, I_C – mA


$V_{BE(sat)}$ – I_C
I_C/I_B=50
Ta=–40°C
25°C
120°C
Base-to-Emitter Saturation Voltage, $V_{BE(sat)}$ – V
Collector Current, I_C – mA


f_T – I_C
V_{CE}=–10V
Gain-Bandwidth Product, f_T – MHz
Collector Current, I_C – mA


Cob – V_{CB}
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, V_{CB} – V