

2SC6120

FOR GENERAL PURPOSE HIGH CURRENT DRIVE APPLICATION
SILICON NPN EPITAXIAL TYPE

DESCRIPTION

2SC6120 is a silicon NPN epitaxial type transistor designed with high collector current, low $V_{CE(sat)}$.

FEATURE

- High collector current

$$I_{C(MAX)} = 600\text{mA}$$

- Low collector to emitter saturation voltage

$$V_{CE(sat)} < 0.3V_{max} (I_C = 150\text{mA}, I_B = 15\text{mA})$$

APPLICATION

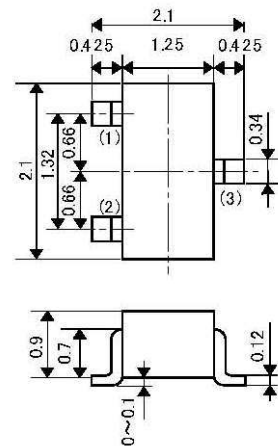
For switching application, small type motor drive application.

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Symbol	Parameter	Ratings	Unit
V_{CEO}	Collector to Emitter voltage	40	V
V_{CBO}	Collector to Base voltage	75	V
V_{EBO}	Emitter to Base voltage	6	V
I_C	Collector current	600	mA
P_C	Collector dissipation	150	mW
T_j	Junction temperature	+150	$^\circ\text{C}$
T_{stg}	Storage temperature	-55~+150	$^\circ\text{C}$

OUTLINE DRAWING

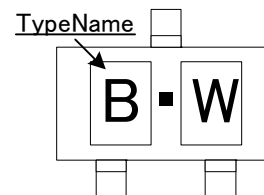
Unit: mm



TERMINAL CONNECTOR

- ①: BASE JEITA: SC-70
②: EMITTER JEDEC: —
③: COLLECTOR

MARKING

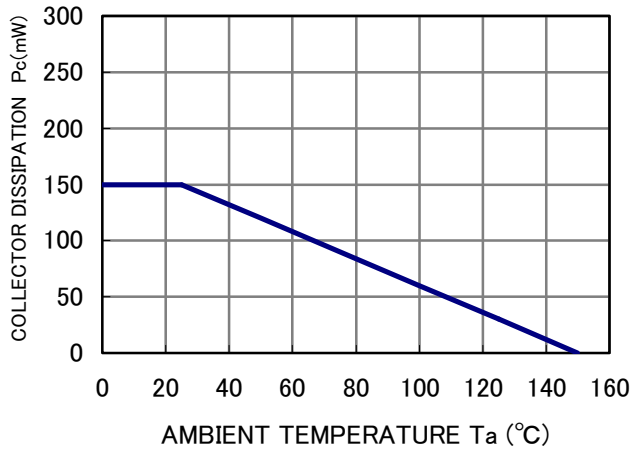


ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

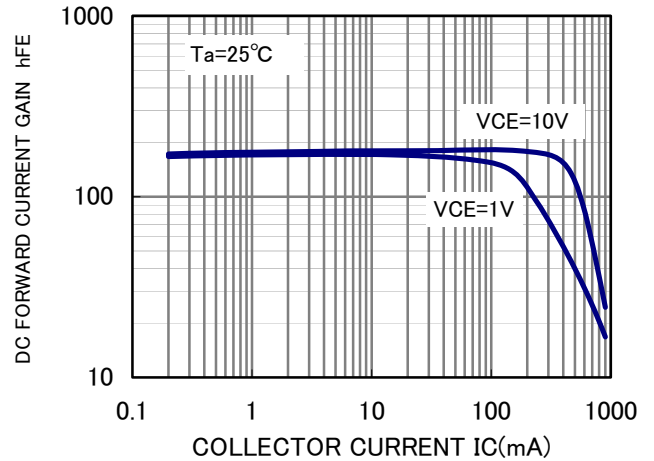
Symbol	Parameter	Test condition	Limits			Unit
			Min	Typ	Max	
$V_{(BR)CEO}$	C to E break down voltage	$I_C = 1\text{mA}, I_B = 0$	40			V
$V_{(BR)CBO}$	C to B break down voltage	$I_C = 10\mu\text{A}, I_E = 0$	75			V
$V_{(BR)EBO}$	E to B break down voltage	$I_E = 10\mu\text{A}, I_C = 0$	6			V
I_{CBO}	Collector cut off current	$V_{CB} = 60\text{V}, I_E = 0$			100	nA
I_{EBO}	Emitter cut off current	$V_{EB} = 3\text{V}, I_C = 0$			100	nA
h_{FE}	DC forward current gain	$I_C = 150\text{mA}, V_{CE} = 10\text{V}$	100		300	---
$V_{CE(sat)}$	C to E saturation voltage	$I_C = 150\text{mA}, I_B = 15\text{mA}$			0.3	V
$V_{BE(sat)}$	B to E saturation voltage	$I_C = 150\text{mA}, I_B = 15\text{mA}$	0.6		1.2	V
f_T	Gain band width product	$I_E = -20\text{mA}, V_{CE} = 20\text{V}, f = 100\text{MHz}$		250		MHz
C_{ob}	Collector output capacitance	$V_{CB} = 10\text{V}, f = 1\text{MHz}$			8	pF

TYPICAL CHARACTERISTICS

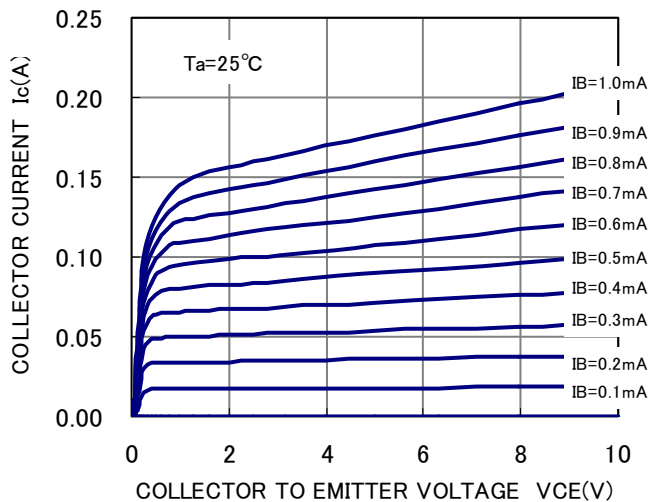
COLLECTOR DISSIPATION VS.
AMBIENT TEMPERATURE



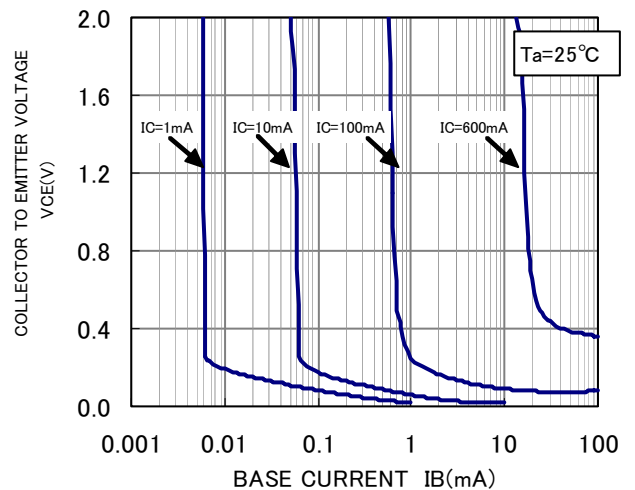
DC FORWARD CURRENT GAIN VS.
COLLECTOR CURRENT



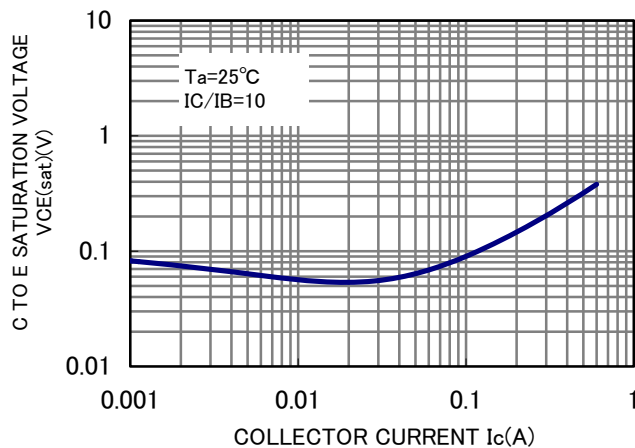
COMMON EMITTER OUTPUT



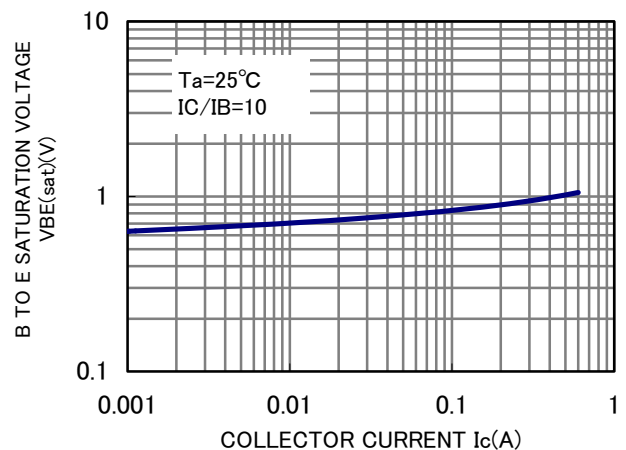
COLLECTOR TO EMITTER VOLTAGE VS.
BASE CURRENT



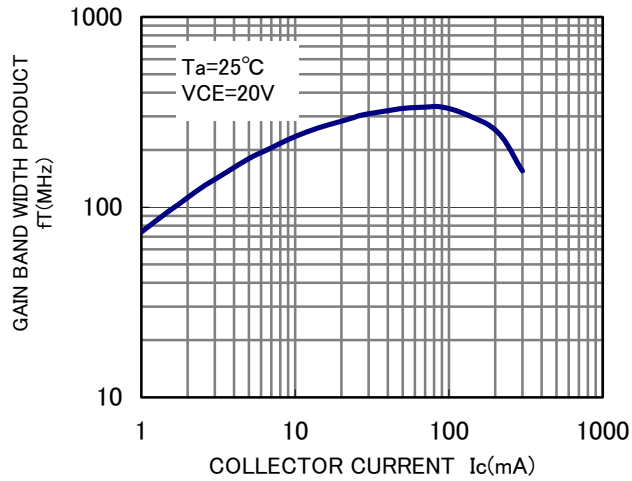
C TO E SATURATION VOLTAGE VS.
COLLECTOR CURRENT



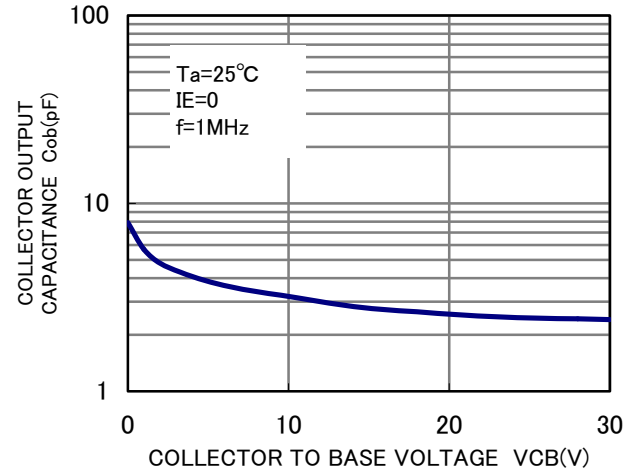
B TO E SATURATION VOLTAGE VS.
COLLECTOR CURRENT



GAIN BAND WIDTH PRODUCT VS.
COLLECTOR CURRENT



COLLECTOR OUTPUT CAPACITANCE VS.
COLLECTOR TO BASE VOLTAGE





Marketing division, Marketing planning department

6-41 Tsukuba, Isahaya, Nagasaki, 854-0065 Japan

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