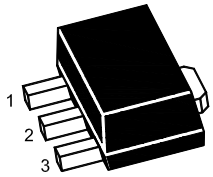
ST 2SA1213U

PNP Silicon Epitaxial Planar Transistor

for power amplifier and power switching applications

The transistor is subdivided into two groups, O and Y, according to its DC current gain.



1.Base 2.Collector 3.Emitter
SOT-89 Plastic Package

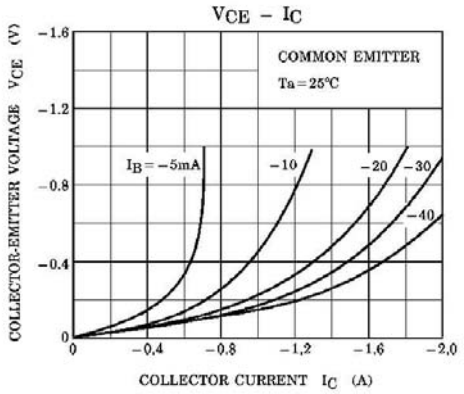
Absolute Maximum Ratings (T_a = 25 °C)

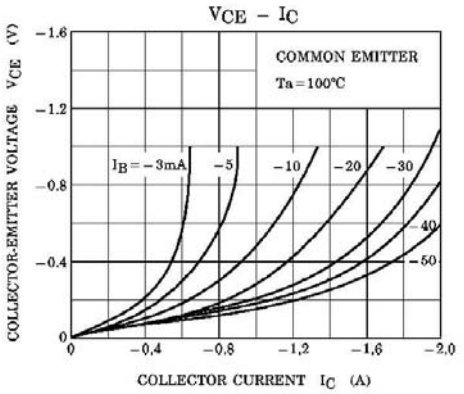
Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	50	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	2	A
Base Current	$-I_B$	0.4	A
Total Power Dissipation	P_{tot}	0.5 1 [1)]	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

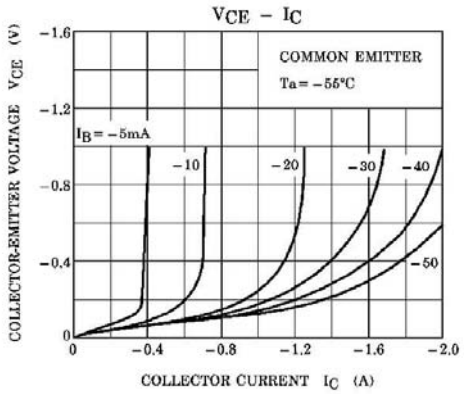
[1)] When mounted on a 250 mm^2 X 0.8 t ceramic substrate.

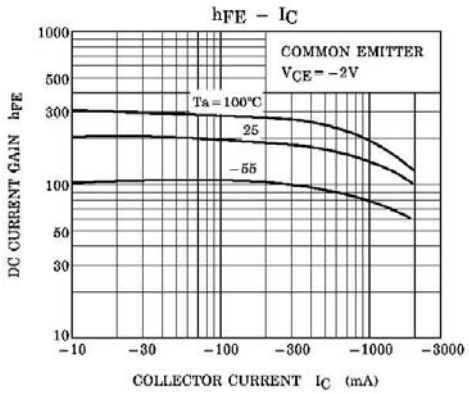
Characteristics at T_a = 25 °C

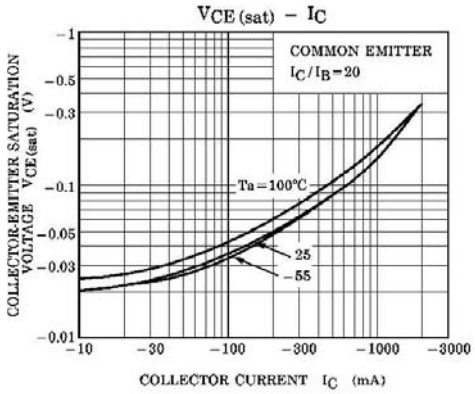
Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_{CE}$ = 2 V, $-I_C$ = 500 mA	Current Gain Group O	h_{FE}	70	-	140	-
	Y	h_{FE}	120	-	240	-
at $-V_{CE}$ = 2 V, $-I_C$ = 2 A		h_{FE}	20	-	-	-
Collector Base Cutoff Current at $-V_{CB}$ = 50 V		$-I_{CBO}$	-	-	100	nA
Emitter Base Cutoff Current at $-V_{EB}$ = 5 V		$-I_{EBO}$	-	-	100	nA
Collector Emitter Breakdown Voltage at $-I_C$ = 10 mA		$-V_{(BR)CEO}$	50	-	-	V
Collector Emitter Saturation Voltage at $-I_C$ = 1 A, $-I_B$ = 50 mA		$-V_{CE(sat)}$	-	-	0.5	V
Base Emitter Saturation Voltage at $-I_C$ = 1 A, $-I_B$ = 50 mA		$-V_{BE(sat)}$	-	-	1.2	V
Transition Frequency at $-V_{CE}$ = 2 V, $-I_C$ = 500 mA		f_T	-	120	-	MHz
Collector Output Capacitance at $-V_{CB}$ = 10 V, f = 1 MHz		C_{ob}	-	40	-	pF
Turn-on Time at $-V_{CC}$ = 30 V, $-I_{B1}$ = I_{B2} = 50 mA		t_{on}	-	0.1	-	µs
Storage Time at $-V_{CC}$ = 30 V, $-I_{B1}$ = I_{B2} = 50 mA		t_{stg}	-	1	-	µs
Fall Time at $-V_{CC}$ = 30 V, $-I_{B1}$ = I_{B2} = 50 mA		t_f	-	0.1	-	µs

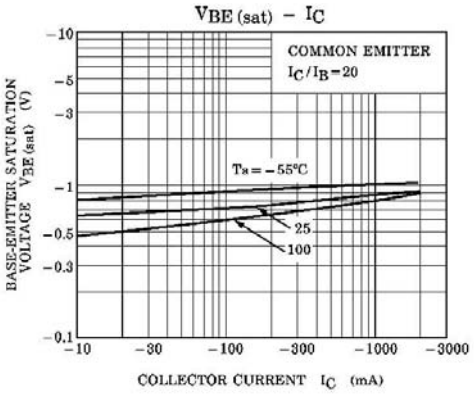

VCE – IC
COMMON EMITTER
Ta=25°C
IB=−5mA
−10
−20
−30
−40
COLLECTOR-EMITTER VOLTAGE VCE (V)
COLLECTOR CURRENT IC (A)


VCE – IC
COMMON EMITTER
Ta=100°C
IB=−3mA
−5
−10
−20
−30
−40
−50
COLLECTOR-EMITTER VOLTAGE VCE (V)
COLLECTOR CURRENT IC (A)

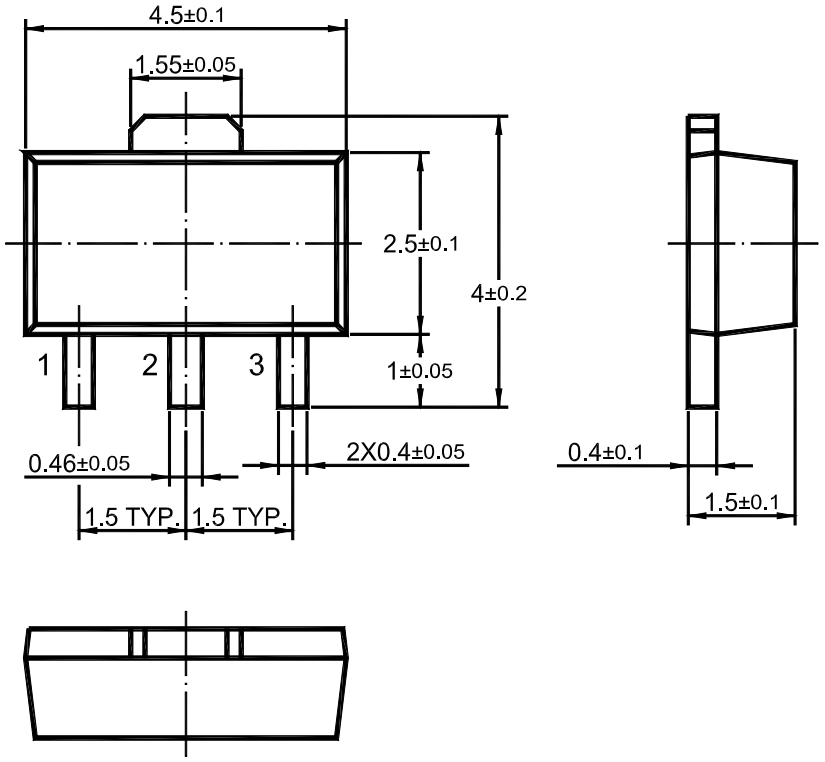

VCE – IC
COMMON EMITTER
Ta=−55°C
IB=−5mA
−10
−20
−30
−40
−50
COLLECTOR-EMITTER VOLTAGE VCE (V)
COLLECTOR CURRENT IC (A)


hFE – IC
COMMON EMITTER
VCE=−2V
Ta=100°C
25
−55
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (mA)


VCE (sat) – IC
COMMON EMITTER
IC/IB=20
Ta=100°C
25
−55
COLLECTOR-EMITTER SATURATION VOLTAGE VCE (sat) (V)
COLLECTOR CURRENT IC (mA)


VBE (sat) – IC
COMMON EMITTER
IC/IB=20
Ta=−55°C
25
100
BASE-EMITTER SATURATION VOLTAGE VBE (sat) (V)
COLLECTOR CURRENT IC (mA)

SOT-89 PACKAGE OUTLINE



Dimensions in mm