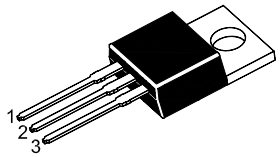
ST 2SA1012

PNP Silicon Epitaxial Planar Transistor

for high current switching applications.

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



1.Base 2.Collector 3.Emitter

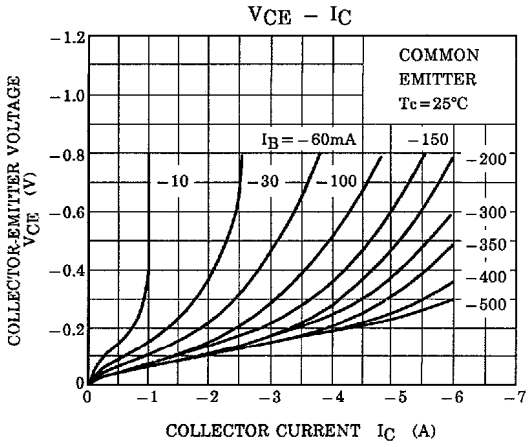
TO-220 Plastic Package

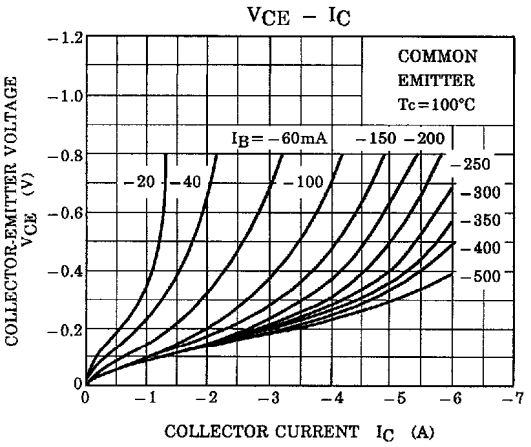
Absolute Maximum Ratings (T_a = 25 °C)

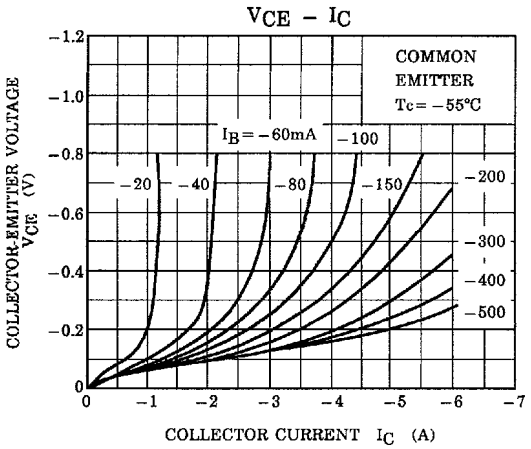
Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	60	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	5	A
Power Dissipation	P_{tot}	25	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_s	-55 to +150	°C

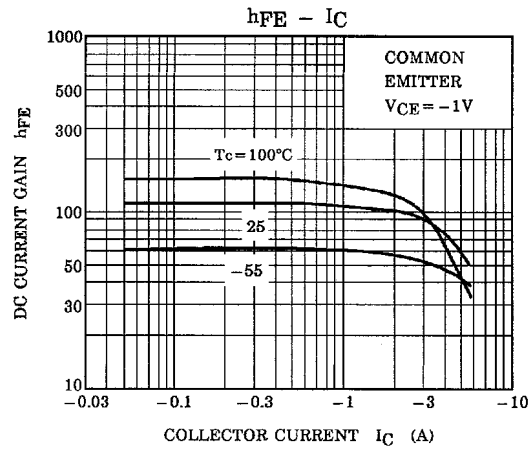
Characteristics at T_{amb} = 25 °C

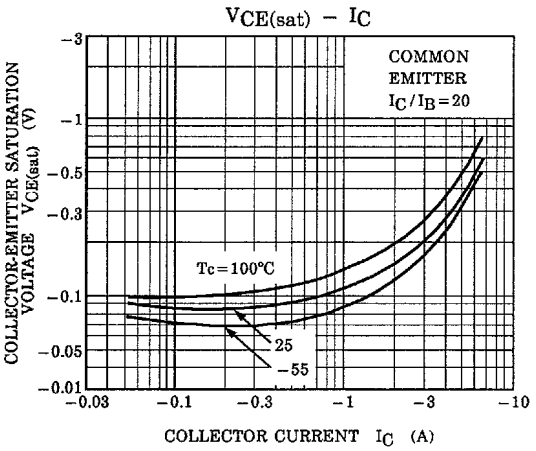
Parameter		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain						
at $-V_{CE}$ = 1 V, $-I_C$ = 1 A	O	h_{FE}	70	-	140	-
	Y	h_{FE}	120	-	240	-
at $-V_{CE}$ = 1 V, $-I_C$ = 3 A		h_{FE}	30	-	-	-
Collector Emitter Breakdown Voltage at $-I_C$ = 10 mA		$-V_{(BR)CEO}$	50	-	-	V
Collector Cutoff Current at $-V_{CB}$ = 50 V		$-I_{CBO}$	-	-	1	µA
Emitter Cutoff Current at $-V_{EB}$ = 5 V		$-I_{EBO}$	-	-	1	µA
Collector Emitter Saturation Voltage at $-I_C$ = 3 A, $-I_B$ = 0.15 A		$-V_{CE(sat)}$	-	-	0.4	V
Base Emitter Saturation Voltage at $-I_C$ = 3 A, $-I_B$ = 0.15 A		$-V_{BE(sat)}$	-	-	1.2	V
Transition Frequency at $-V_{CE}$ = 4 V, $-I_C$ = 1 A		f_T	-	60	-	MHz
Collector Output Capacitance at $-V_{CB}$ = 10 V, f = 1 MHz		C_{ob}	-	170	-	pF

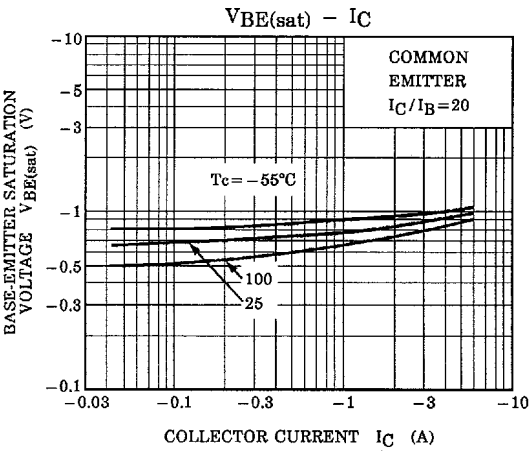

V_{CE} – I_C
COMMON EMITTER
Tc=25°C
I_B=–60mA
–10
–30
–100
–150
–200
–300
–350
–400
–500
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)


V_{CE} – I_C
COMMON EMITTER
Tc=100°C
I_B=–60mA
–20
–40
–100
–150
–200
–250
–300
–350
–400
–500
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)

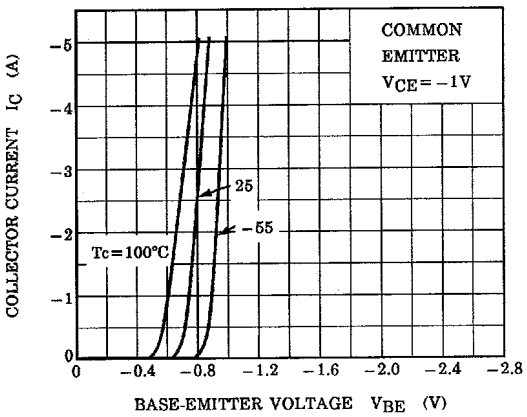

V_{CE} – I_C
COMMON EMITTER
Tc=–55°C
I_B=–60mA
–20
–40
–80
–100
–150
–200
–300
–400
–500
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)
COLLECTOR CURRENT I_C (A)


h_{FE} – I_C
COMMON EMITTER
V_{CE}=–1V
Tc=100°C
25
–55
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (A)

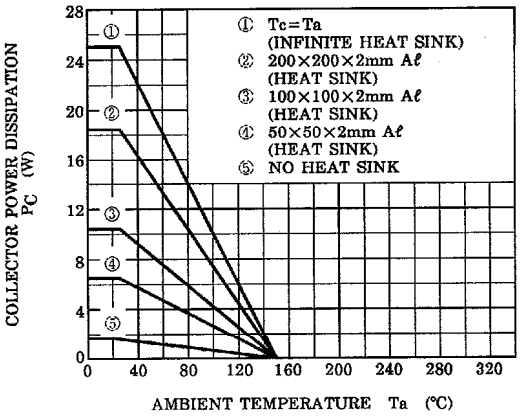

$V_{CE(sat)}$ – I_C
COMMON EMITTER
I_C/I_B=20
Tc=100°C
25
–55
COLLECTOR-EMITTER SATURATION VOLTAGE $V_{CE(sat)}$ (V)
COLLECTOR CURRENT I_C (A)


$V_{BE(sat)}$ – I_C
COMMON EMITTER
I_C/I_B=20
Tc=–55°C
100
25
BASE-EMITTER SATURATION VOLTAGE $V_{BE(sat)}$ (V)
COLLECTOR CURRENT I_C (A)

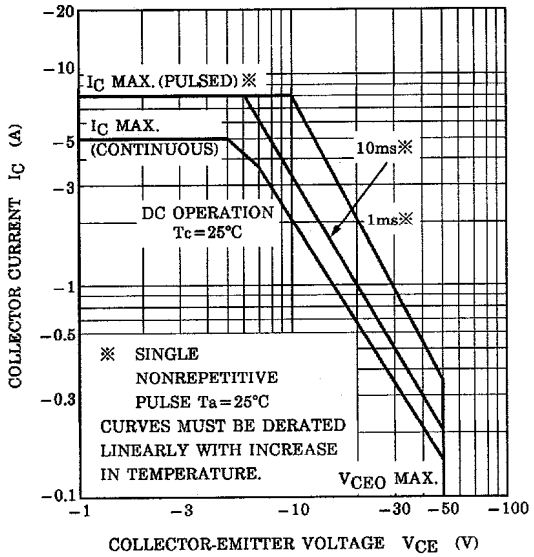
I_C – V_{BE}



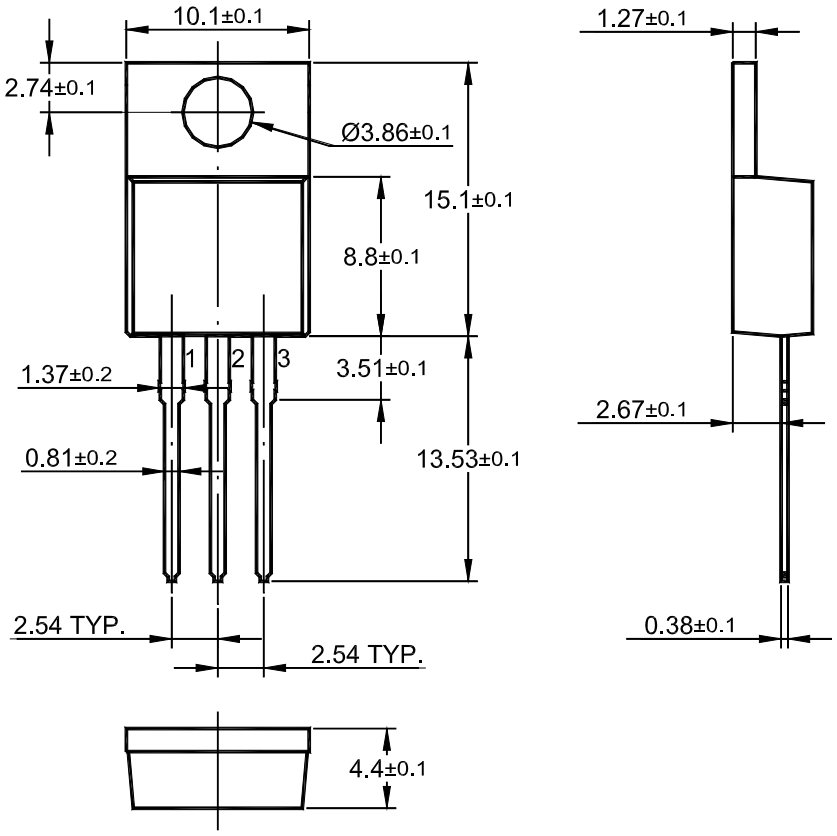
P_C – Ta



SAFE OPERATING AREA



TO-220 PACKAGE OUTLINE



Dimensions in mm