CHENMKO ENTERPRISE CO.,LTD

SMALL FLAT
NPN Epitaxial Transistor
VOLTAGE 50 Volts CURRENT 2 Ampere

2SC1766PT

Lead free devices

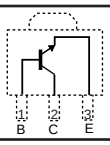
APPLICATION
* Power amplifier .

FEATURE
* Small flat package. (SC-62/SOT-89)
* Low saturation voltage $V_{CE(sat)}$=-0.5V(max.)(I =-1A)
* High speed switching time: t_{stg}= 1.0uSec (typ.)
* PC= 1.0 to 2.0W (mounted on ceramic substrate).
* High saturation current capability.

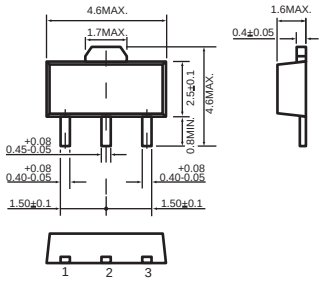
CONSTRUCTION
* NPN Switching Transistor

MARKING
* hFE Classification P: 1766
Q: Q1766
Y: Y1766

CIRCUIT



SC-62/SOT-89



1 Base
2 Collector (Heat Sink)
3 Emitter

Dimensions in millimeters

SC-62/SOT-89

MAXIMUM RATINGES (At T_A = 25°C unless otherwise noted)

RATINGS	CONDITION	SYMBOL	MIN.	MAX.	UNITS
Collector - Base Voltage	Open Emitter	V_{CBO}	-	50	Volts
Collector - Emitter Voltage	Open Base	V_{CEO}	-	50	Volts
Emitter - Base Voltage	Open Collector	V_{EBO}	-	5	Volts
Collector Current DC		I_C	-	2	Amps
Peak Collector Current		I_{CM}	-	2	Amps
Peak Base Current		I_{BM}	-	0.4	Amps
Total Power Dissipation	$T_A \leq 25^oC$; Note 1	P_{TOT}	-	1000	mW
Storage Temperature		T_{STG}	-55	+150	°C
Junction Temperature		T_J	-	+150	°C
Operating Ambient Temperature		T_{AMB}	-55	+150	°C

Note
1. Transistor mounted on ceramic substrate 50mmX50mmx0.8t.
2. Measured at Pulse Width 300 us, Duty Cycle 2%.

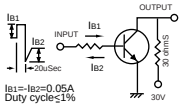
2003-8

RATING CHARACTERISTIC CURVES (2SC1766PT)

CHARACTERISTICS (At T_A = 25°C unless otherwise noted)

PARAMETERS	CONDITION	SYMBOL	MIN.	TYPE	MAX.	UNITS
Collector Cut-off Current	I_E=0; V_{CB}=50V	I_{CBO}	-	-	0.1	uA
Emitter Cut-off Current	I_C=0; V_{EB}=5V	I_{CEO}	-	-	0.1	uA
DC Current Gain	V_{CE}=2V; Note 1 I_C=0.5A; Note 2 I_C=2.0A	h_{FE}	70 20	- -	390 -	
Collector-Emitter Saturation Voltage	I_C=1A; I_B=0.05A	V_{CEsat}	-	-	0.5	Volts
Base-Emitter Saturatio Voltage	I_C=1A; I_B=0.05A	V_{BEsat}	-	-	1.2	mVolts
Collector Capacitance	I_E=ie=0; V_{CB}=-10V; f=1MHz	C_C	-	40	-	pF
Transition Frequency	I_C=-0.5A; V_{CE}=2V; f=100MHz	f_T	-	120	-	MHz

SWITCHING TIMES (Between 10% and 90% levels)

PARAMETERS	CONDITION	SYMBOL	MIN.	TYPE	MAX.	UNITS
Turn-on Time	 I_{B1}=-I_{B2}=0.05A Duty cycle≤1%	t_{on}	-	0.1	-	uSec
Storage Time		t_s	-	1.0	-	uSec
Fall Time		t_f	-	0.1	-	uSec

Note :
1. Pulse test: tp ≤ 300uSec; δ ≤ 0.02.
2. hFE(1) Classification P:82 to 180 Q: 120 to 270, Y: 180 to 390

RATING CHARACTERISTIC CURVES (2SC1766PT)

Typical Electrical Characteristics

Figure 1. V_{CE} - I_C

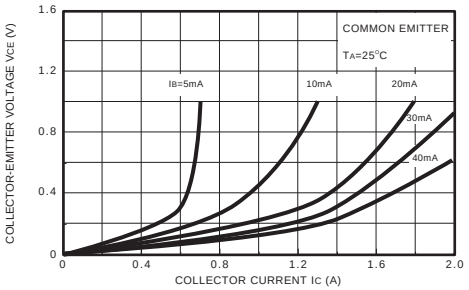


Figure 2. V_{CE} - I_C

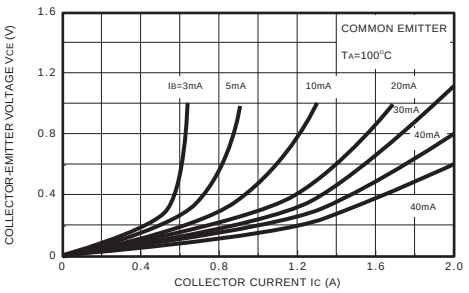


Figure 3. V_{CE} - I_C

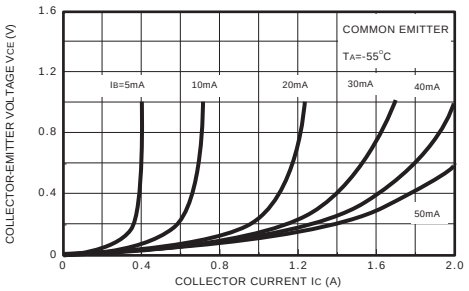


Figure 4. h_{FE} - I_C

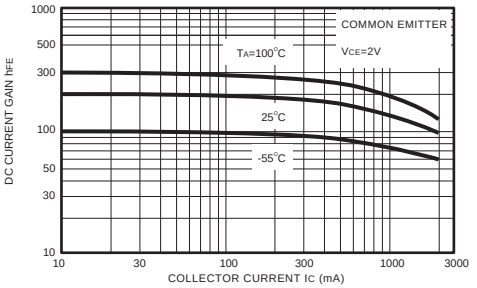


Figure 5. $V_{CE(sat)}$ - I_C

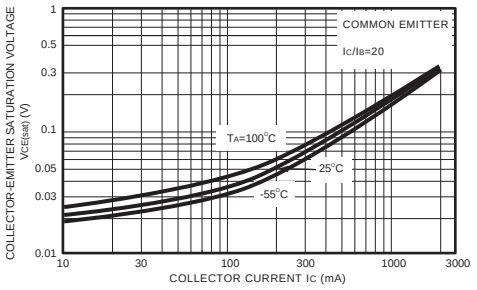
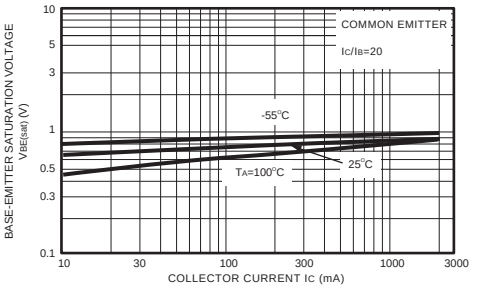


Figure 6. $V_{BE(sat)}$ - I_C



RATING CHARACTERISTIC CURVES (2SC1766PT)

Typical Electrical Characteristics

Figure 7. I_C - V_{BE}

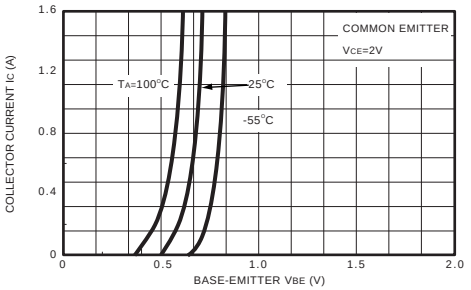


Figure 8. P_C - T_A

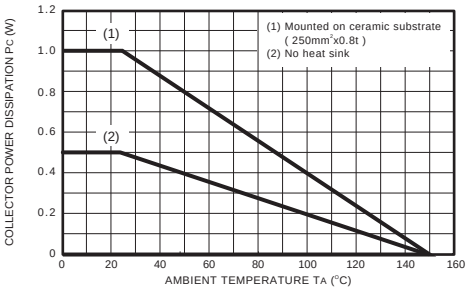


Figure 9. Safe Operation Area