



**CHENMKO ENTERPRISE CO.,LTD**

*Halogens free devices*

**SURFACE MOUNT**

**NPN Multi-Chip General Purpose Amplifier**

VOLTAGE 45 Volts CURRENT 0.2 Ampere

**CH847SGP**

**APPLICATION**

- \* AF input stages and driver applicationon equipment.
- \* Other general purpose applications.

**FEATURE**

- \* Small surface mounting type. (SC-88/SOT-363)
- \* High current gain.
- \* Suitable for high packing density.
- \* Low collector-emitter saturation.
- \* High saturation current capability.
- \* Two internal isolated NPN transistors in one package.

**CONSTRUCTION**

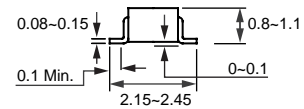
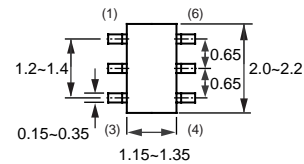
- \* Two NPN transistors in one package.

**MARKING**

- \* NF



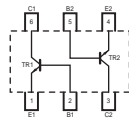
**SC-88/SOT-363**



Dimensions in millimeters

**SC-88/SOT-363**

**CIRCUIT**



**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter	-	50	V
V <sub>CEO</sub>	collector-emitter voltage	open base	-	45	V
V <sub>CES</sub>	collector-base voltage	open emitter	-	50	V
V <sub>EBO</sub>	emitter-base voltage	open collector	-	6	V
I <sub>C</sub>	collector current (DC)		-	200	mA
I <sub>CM</sub>	peak collector current		-	400	mA
I <sub>BM</sub>	peak base current		-	2	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	-	300	mW
T <sub>stg</sub>	storage temperature		-55	+150	°C
T <sub>j</sub>	junction temperature		-	150	°C
T <sub>amb</sub>	operating ambient temperature		-55	+150	°C

**Note**

1. Transistor mounted on an FR4 printed-circuit board.

## RATING CHARACTERISTIC ( CH847SGP )

### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{thj-s}$	thermal resistance from junction to ambient	note 1	415	K/W

#### Note

- Transistor mounted on an FR4 printed-circuit board.

### CHARACTERISTICS

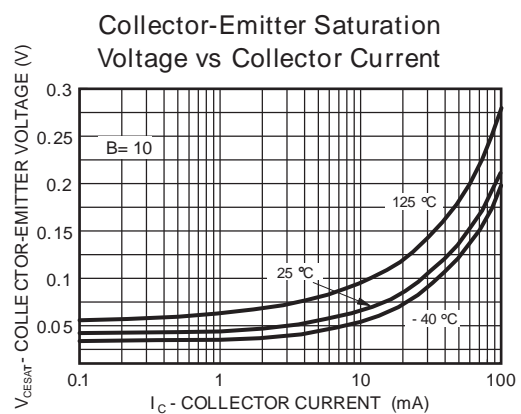
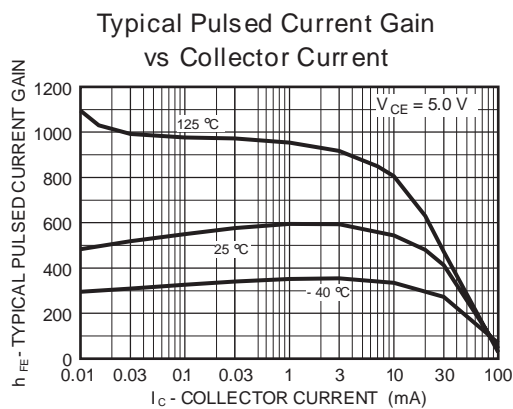
$T_{amb} = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	–	15	nA
		$I_C = 0; V_{CB} = 30\text{ V}; T_A = 150\text{ }^{\circ}\text{C}$	–	30	uA
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 4\text{ V}$	–	15	nA
$h_{FE}$	DC current gain	$I_C = 2.0\text{ mA}; V_{CE} = 5.0\text{ V}; \text{note 1}$	110	630	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	–	250	mV
		$I_C = 100\text{ mA}; I_B = 5\text{ mA}$	–	650	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = 2.0\text{ mA}; V_{CE} = 5.0\text{ V}$	0.58	0.70	V
		$I_C = 10\text{ mA}; V_{CE} = 5.0\text{ V}$	–	0.77	V
$C_c$	collector capacitance	$I_E = I_B = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	2.0	pF
$f_T$	transition frequency	$I_C = 50\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	200	–	MHz

#### Note

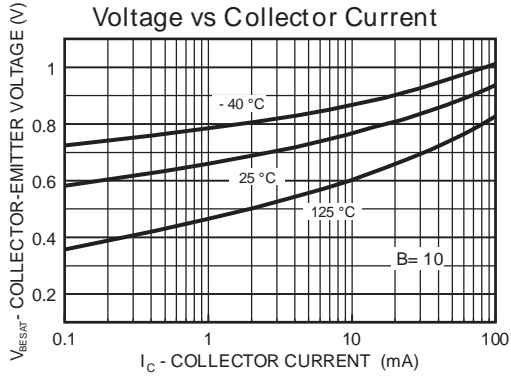
- Pulse test:  $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$ .

## RATING CHARACTERISTIC CURVES ( CH847SGP )

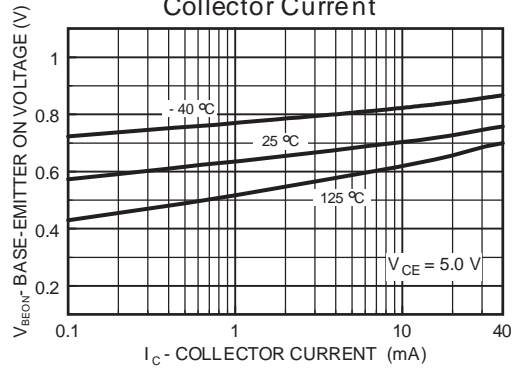


## RATING CHARACTERISTIC CURVES ( CH847SGP )

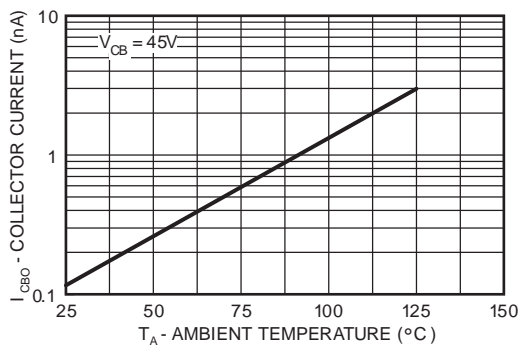
**Base-Emitter Saturation Voltage vs Collector Current**



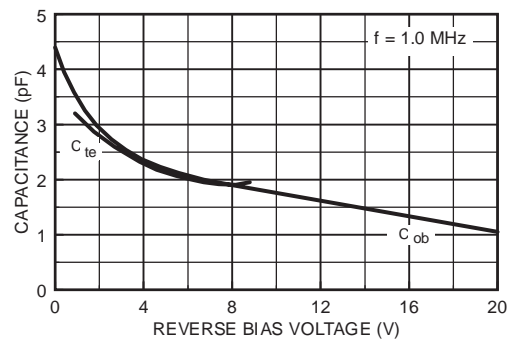
**Base-Emitter ON Voltage vs Collector Current**



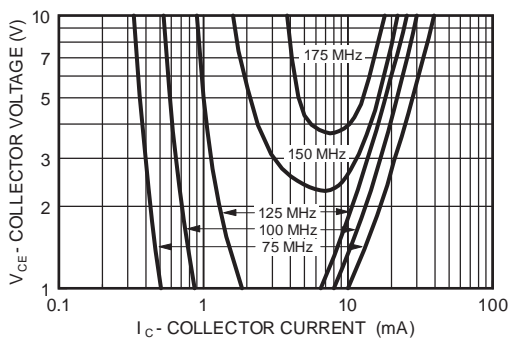
**Collector-Cutoff Current vs Ambient Temperature**



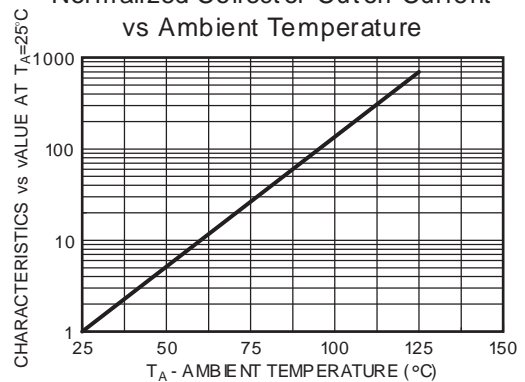
**Input and Output Capacitance vs Reverse Bias Voltage**



**Contours of Constant Gain Bandwidth Product ( $f_T$ )**

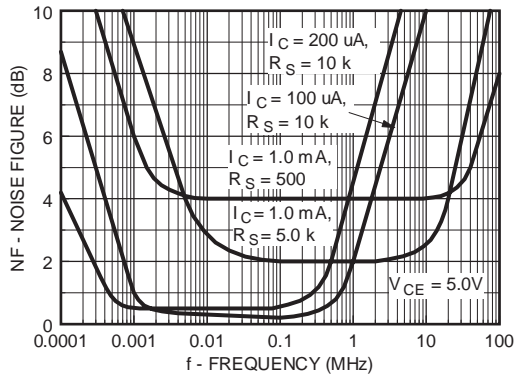


**Normalized Collector-Cutoff Current vs Ambient Temperature**

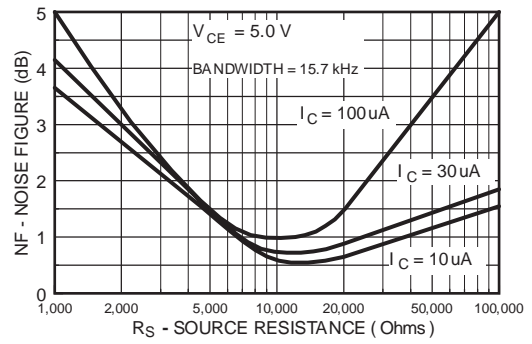


## RATING CHARACTERISTIC CURVES ( CH847SGP )

Noise Figure vs Frequency



Wideband Noise Frequency vs Source Resistance



Power Dissipation vs Ambient Temperature

