CHENMKO ENTERPRISE CO.,LTD

CHUMF22PT

SURFACE MOUNT

Power Management (Dual Transistor)

Tr1:VOLTAGE 12 Volts CURRENT 0.5 Ampere

DTr2:VOLTAGE 50 Volts CURRENT 50 mAmpere

Lead free devices

APPLICATION

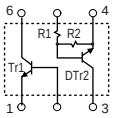
* Power management circuit

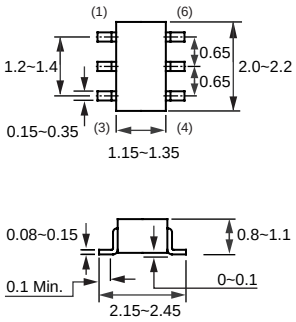
FEATURE

* Small surface mounting type. (SC-88/SOT-363)
* Power switching circuit in a single package.
* Mounting cost and area can be cut in half.
* Both the 2SC5585 & CHDTC114E in one package.
* Built in bias resistor(R1=10kΩ, Typ.)

SC-88/SOT-363

CIRCUIT





Dimensions in millimeters

SC-88/SOT-363

2SC5585 LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	Collector-base voltage		–	15	V
V_{CEO}	Collector-emitter voltage		–	12	V
V_{EBO}	Emitter-base voltage		–	6	V
I_C	DC Output current		–	500	mA
I_{CP}		NOTE.1	–	1000	
P_C	Total power dissipation	NOTE.2	–	150	mW
T_{STG}	Storage temperature		–55	+150	°C
T_J	Junction temperature		–	150	°C

Note

1. Single pulse Pw=1ms
2. 120mW per element must not be exceeded.
   Each terminal mounted on a recommended land.

CHDTC114E LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CC}	Supply voltage		–	50	V
V_{IN}	Input voltage		-10	+40	V
I_O	DC Output current		–	50	mA
$I_{C(Max.)}$		NOTE.1	–	100	
P_C	Power dissipation	NOTE.2	–	150	mW
T_{STG}	Storage temperature		–55	+150	°C
T_J	Junction temperature		–	150	°C

Note

1. Characteristics of built-in transistor.
2. Each terminal mounter on a recommended land.

2SC5585 CHARACTERISTICS

T_{amb} = 25 °C unless otherwise speciÞed.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
BV_{CEO}	Collector-emitter breakdown voltage	I_C=1mA	12	–	–	V
BV_{CBO}	Collector-base breakdown voltage	I_C=10uA	15	–	–	V
BV_{EBO}	Emitter-base breakdown voltage	I_E=10uA	6	–	–	V
I_{CBO}	Collector cut-off current	V_{CB}=15V	–	–	100	nA
I_{EBO}	Emitter cut-off current	V_{EB}=6V	–	–	100	nA
h_{FE}	DC current gain	V_{CE}=2V,I_C=10mA	270	–	680	–
$V_{CE(sat)}$	Collector-emitter saturation voltage	I_C=200mA,I_B=10mA	–	90	250	mV
Cob	Collector output capacitance	V_{CB}=10V,I_E=0mA,f=1MHZ	–	7.5	–	pF
f_T	Transition frequency	V_{CE}=2V,I_E=-10mA,f=100MHZ	–	320	–	MHz

Note

1.Pulse test: tp≤300uS; δ≤0.02.

CHDTC114E CHARACTERISTICS

T_{amb} = 25 °C unless otherwise speciÞed.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{I(off)}$	Input off voltage	I_O=100uA; V_{CC}=5.0V	0.5	–	–	V
$V_{I(on)}$	Input on voltage	I_O=10mA; V_O=0.3V	–	–	3.0	V
$V_{O(on)}$	Output voltage	I_O=10mA; I_I=0.5mA	–	0.1	0.3	V
I_I	Input current	V_I=5V	–	–	0.88	mA
$I_{C(off)}$	Output current	V_I=0V; V_{CC}=50V	–	–	0.5	uA
G1	DC current gain	I_O=5mA; V_O=5.0V	30	–	–	–
R_1	Input resistor		7	10	13	KΩ
R_2/R_1	Resistor ratio		0.8	1.0	1.2	–
f_T	Transition frequency	I_E=-5mA, V_{CE}=10.0V f=100MHz	–	250	–	MHz

Note

Pulse test: tp≤300uS; δ≤0.02.

RATING CHARACTERISTIC CURVES (CHUMF22PT)

2SC5585 Typical Electrical Characteristics

Fig.1 Ground emitter propagation characteristics

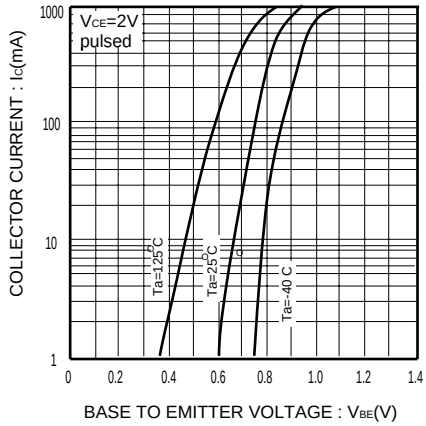


Fig.2 DC current gain vs. collector current

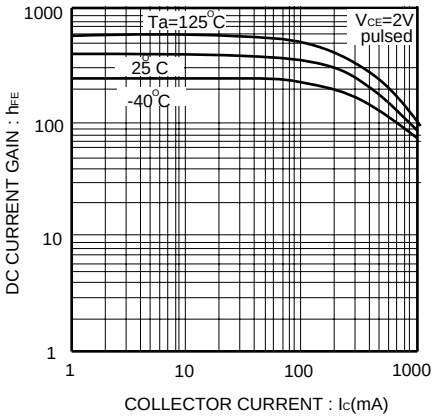


Fig.3 Collector-emitter saturation voltage vs. collector current (I)

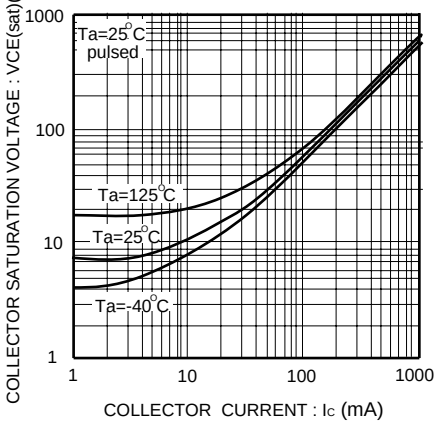
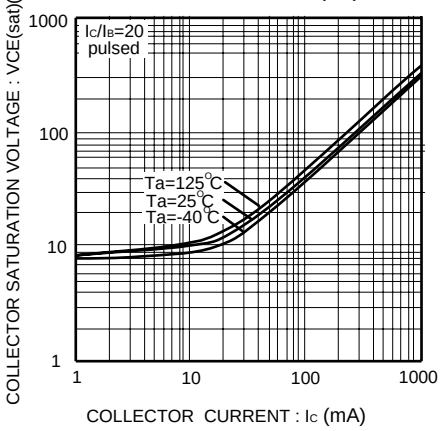


Fig.4 Collector-emitter saturation voltage vs. collector current (II)



RATING CHARACTERISTIC CURVES (CHUMF22PT)

2SC5585 Typical Electrical Characteristics

Fig.5 Base-emitter saturation voltage vs. collector current

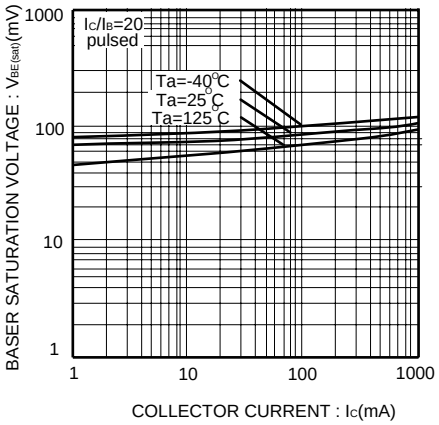


Fig.6 Gain bandwidth product vs. collector current

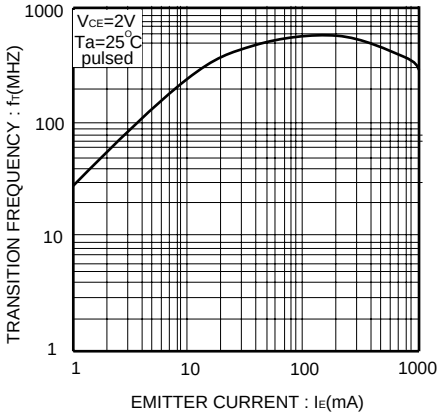
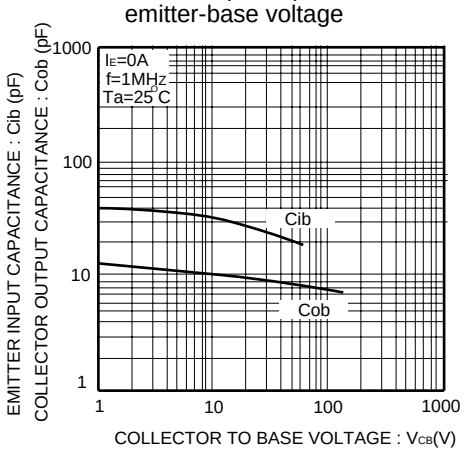


Fig.7 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage



RATING CHARACTERISTIC CURVES (CHUMF22)

CHDTC114E Typical Electrical Characteristics

Fig.1 Input voltage vs. output current (ON characteristics)

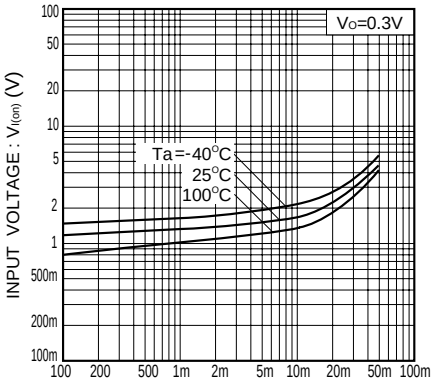


Fig.2 Output current vs. input voltage (OFF characteristics)

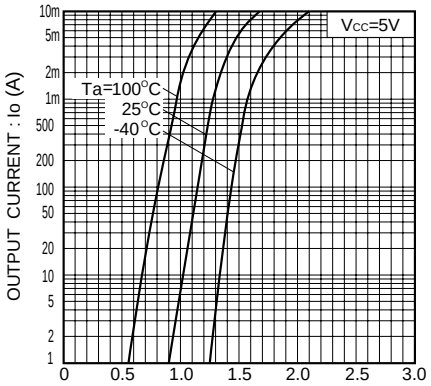


Fig.3 DC current gain vs. output current

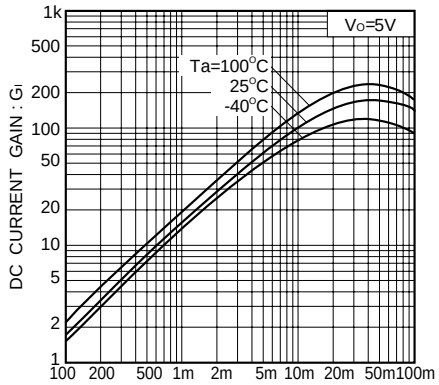


Fig.4 Output voltage vs. output current