



CHENMKO ENTERPRISE CO.,LTD

CHDTC643TUPT

Lead free devices

**SURFACE MOUNT
NPN Digital Silicon Transistor**

VOLTAGE 20 Volts CURRENT 600 mAmpere

APPLICATION

* Switching circuit, Inverter, Interface circuit, Driver circuit.

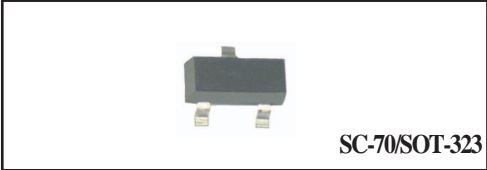
FEATURE

- * Small surface mounting type. (SC-70/SOT-323)
- * In addition to the features of regular digital transistor.
V_{CE(sat)}=40mV at I_C/I_B=50mA/2.5mA, makes these transistors ideal for muting circuits.
- * These transistors can be used at high current levels, I_C=600mA
- * Internal isolated NPN transistors in one package.
- * Built in single resistor (R₁=2.2kΩ, Typ.)

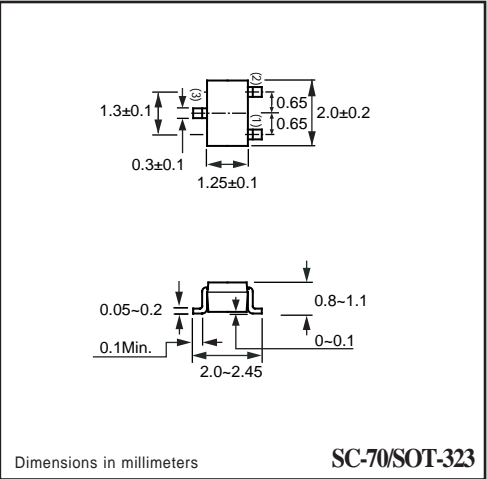
CONSTRUCTION

* One NPN transistors and bias of thin-film resistors in one package.

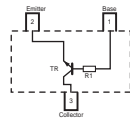
MARKING



SC-70/SOT-323



CIRCUIT



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V _{CBO}	Collector-Base voltage		20	V
V _{CEO}	Collector-Emitter voltage		20	V
V _{EBO}	Emitter-Base voltage		12	V
I _{C(Max.)}	Collector current		600	mA
P _D	Power dissipation	T _{amb} ≤ 25 °C, Note 1	200	mW
T _{STG}	Storage temperature		-55 +150	°C
T _J	Junction temperature		-55 +150	°C

Note

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

RATING CHARACTERISTIC (CHDTC643TUPT)

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
BVCBO	Collector-base breakdown voltage	$I_C=50\mu\text{A}$	20	–	–	V
BVCEO	Collector-emitter breakdown voltage	$I_C=1.0\text{mA}$	20	–	–	V
BVEBO	Emitter-base breakdown voltage	$I_E=50\mu\text{A}$	12	–	–	V
ICBO	Collector cutoff current	$V_{CB}=20\text{V}$	–	–	0.5	μA
IEBO	Emitter cutoff current	$V_{EB}=12\text{V}$	–	–	0.5	μA
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C/I_B=50\text{mA}/2.5\text{mA}$	–	40	150	mV
h_{FE}	DC current gain	$I_C=50\text{mA}; V_{CE}=5.0\text{V}$	820	–	2700	
R_1	Input resistor		3.29	4.7	6.11	$\text{K}\Omega$
f_T	Transition frequency	$I_E=-50\text{mA}, V_{CE}=10.0\text{V}$ $f=100\text{MHz}$	–	150	–	MHz
R_{ON}	Output "ON" resistance	$V_I=5\text{V}, R_L=1\text{K}\Omega, f=1\text{KHz}$	–	0.55	–	Ω

Note

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

RATING CHARACTERISTIC CURVES (CHDTC643TUPT)

Typical Electrical Characteristics

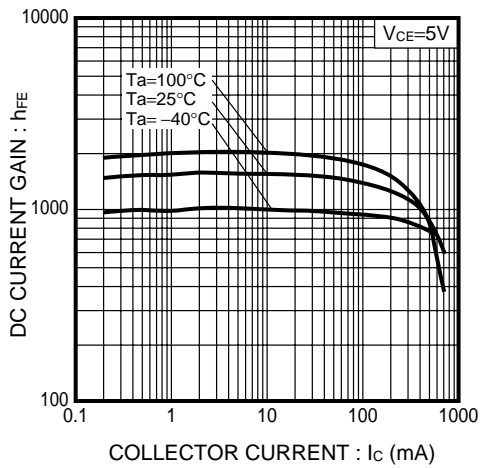


Fig.1 DC Current Gain vs. Collector Current

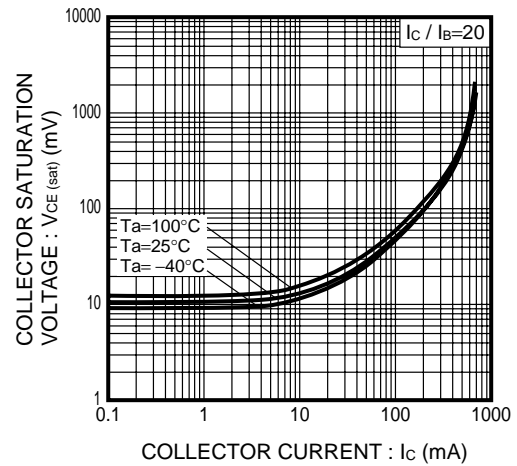


Fig.2 Collector-Emitter Saturation Voltage vs. Collector Current

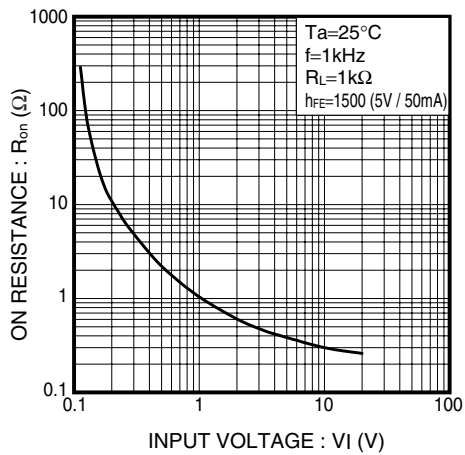


Fig.3 "ON" resistance vs. Input Voltage