



# CHENMKO ENTERPRISE CO.,LTD

## SURFACE MOUNT

### Dual Digital Silicon Transistor

VOLTAGE 50 Volts CURRENT 100 mAmpere

**CHEMD5PT**

Lead free devices

#### APPLICATION

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

#### FEATURE

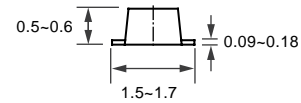
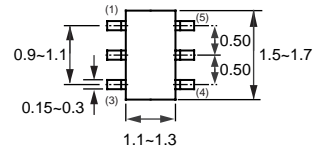
- \* Small surface mounting type. (SOT-563)
- \* High current gain.
- \* Suitable for high packing density.
- \* Low collector-emitter saturation.
- \* High saturation current capability.
- \* Both the CHDTA143X & CHDTC144E in one package.

#### MARKING

\* HD



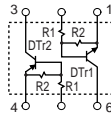
**SOT-563**



Dimensions in millimeters

**SOT-563**

#### CIRCUIT



#### CHDTA143X LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CC</sub>	Supply voltage		-	-50	V
V <sub>IN</sub>	Input voltage		-20	+7	V
I <sub>O</sub>	DC Output current		-	-100	mA
I <sub>C(Max.)</sub>			-	-100	
P <sub>TOT</sub>	Total power dissipation	T <sub>amb</sub> ≤ 25 °C, Note 1	-	150	mW
T <sub>STG</sub>	Storage temperature		-55	+150	°C
T <sub>J</sub>	Junction temperature		-	150	°C
R <sub>θJ-S</sub>	Thermal resistance	junction - soldering point	-	140	°C/W

#### Note

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

### CHDTC144E LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CC</sub>	Supply voltage		–	50	V
V <sub>IN</sub>	Input voltage		-10	+12	V
I <sub>O</sub>	DC Output current		–	30	mA
I <sub>C(Max.)</sub>			–	100	
P <sub>TOT</sub>	Total power dissipation	T <sub>amb</sub> ≤ 25 °C, Note 1	–	200	mW
T <sub>STG</sub>	Storage temperature		-55	+150	°C
T <sub>J</sub>	Junction temperature		–	150	°C
R <sub>θJ-S</sub>	Thermal resistance	junction - soldering point	–	150	°C/W

#### Note

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

### CHDTA143X CHARACTERISTICS

T<sub>amb</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V <sub>I(off)</sub>	Input off voltage	I <sub>O</sub> =-100uA; V <sub>CC</sub> =-5.0V	-0.3	–	–	V
V <sub>I(on)</sub>	Input on voltage	I <sub>O</sub> =-20mA; V <sub>O</sub> =-0.3V	–	–	-2.5	V
V <sub>O(on)</sub>	Output voltage	I <sub>O</sub> =-10mA; I <sub>I</sub> =-0.5mA	–	-0.1	-0.3	V
I <sub>I</sub>	Input current	V <sub>I</sub> =-5V	–	–	-0.18	mA
I <sub>C(off)</sub>	Output current	V <sub>I</sub> =0V; V <sub>CC</sub> =-50V	–	–	-0.5	uA
h <sub>FE</sub>	DC current gain	I <sub>O</sub> =-10mA; V <sub>O</sub> =-5.0V	30	–	–	
R <sub>1</sub>	Input resistor		3.29	4.7	6.11	KΩ
R <sub>2/R1</sub>	Resistor ratio		1.7	2.1	2.6	
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =-5mA, V <sub>CE</sub> =-10.0V f=100MHz	–	250	–	MHz

#### Note

1. Pulse test: t<sub>p</sub>≤300uS; δ≤0.02.

### CHDTC144E CHARACTERISTICS

T<sub>amb</sub> = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V <sub>I(off)</sub>	Input off voltage	I <sub>O</sub> =100uA; V <sub>CC</sub> =5.0V	0.5	–	–	V
V <sub>I(on)</sub>	Input on voltage	I <sub>O</sub> =2mA; V <sub>O</sub> =0.3V	–	–	3.0	V
V <sub>O(on)</sub>	Output voltage	I <sub>O</sub> =10mA; I <sub>I</sub> =0.5mA	–	–	0.3	V
I <sub>I</sub>	Input current	V <sub>I</sub> =5V	–	–	0.18	mA
I <sub>C(off)</sub>	Output current	V <sub>I</sub> =0V; V <sub>CC</sub> =50V	–	–	0.5	uA
h <sub>FE</sub>	DC current gain	I <sub>O</sub> =5mA; V <sub>O</sub> =5.0V	68	–	–	
R <sub>1</sub>	Input resistor		32.9	47	61.1	KΩ
R <sub>2/R1</sub>	Resistor ratio		0.8	1.0	1.2	
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =5mA, V <sub>CE</sub> =10.0V f=100MHz	–	250	–	MHz

#### Note

1. Pulse test: t<sub>p</sub>≤300uS; δ≤0.02.

## RATING CHARACTERISTIC CURVES ( CHEMD5PT )

### CHDTA143X Typical Electrical Characteristics

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

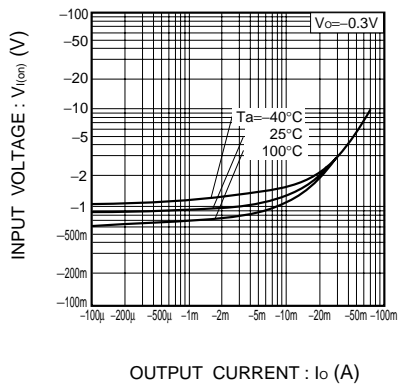


Fig.2 Output current vs. input voltage (OFF characteristics)

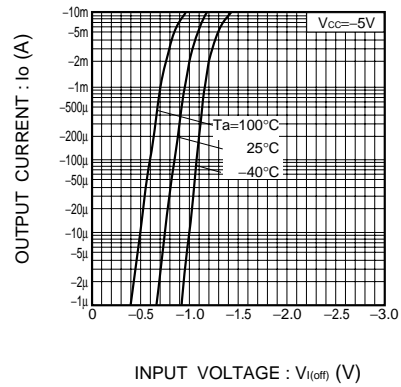


Fig.3 DC current gain vs. output current

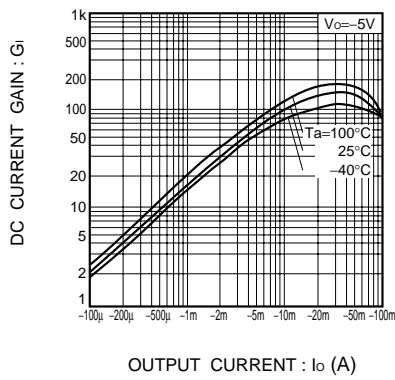
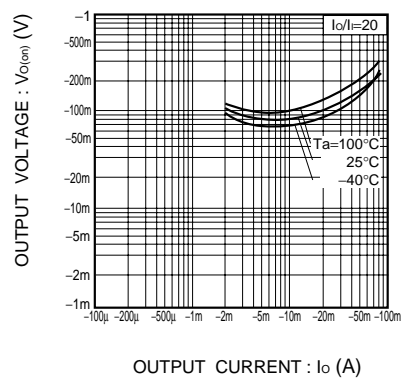


Fig.4 Output voltage vs. output current



## RATING CHARACTERISTIC CURVES ( CHEMD5PT )

### CHDTC144E Typical Electrical Characteristics

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

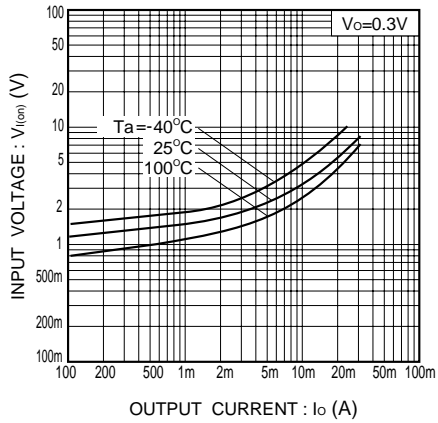


Fig.2 Output current vs. input voltage (OFF characteristics)

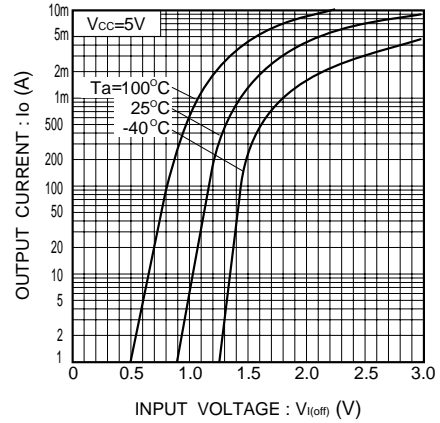


Fig.3 DC current gain vs. output current

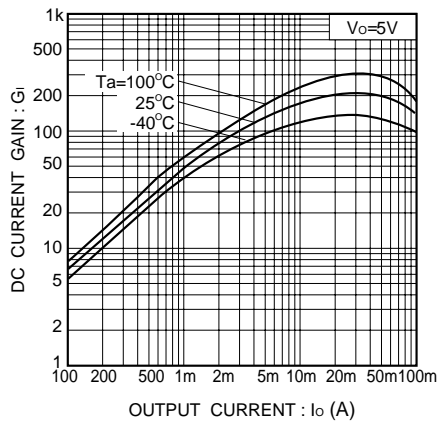


Fig.4 Output voltage vs. output current

