

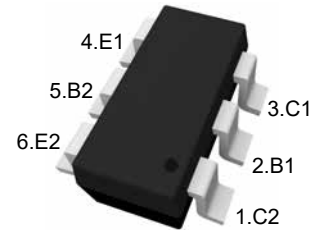
### Features

- Low Saturation Voltage
- Low Equivalent On-Resistance
- For switching and amplifier applications

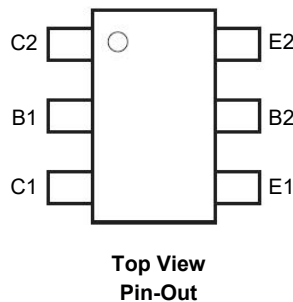
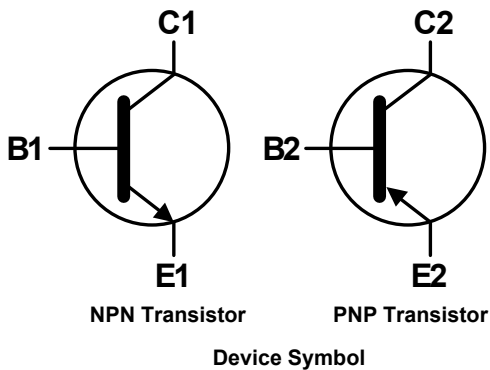
### Applications

- MOSFET Gate Driver
- Low Power Motor Drive
- Low Power DC-DC Converters

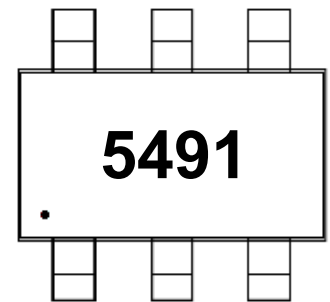
### SOT-23-6



### Equivalent Circuit



### Marking Code



### Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	NPN Transistors	PNP Transistors	Unit
Collector Base Voltage	$V_{CB0}$	80	-80	V
Collector Emitter Voltage	$V_{CE0}$	60	-60	V
Emitter Base Voltage	$V_{EB0}$	7	-7	V
Collector Current	$I_C$	1	-1	A
Peak Collector Current	$I_{CM}$	2	-2	A
Maximum Power Dissipation <sup>Note1</sup>	$P_D$	1		W
Junction Temperature	$T_J$	150		°C
Storage Temperature Range	$T_{STG}$	-55 to +150		°C

Note1: For a device mounted with the collector lead on 25mm x 25mm 1oz copper that is on a single-sided 1.6mm FR4 PCB.



### NPN Electrical Characteristics (T<sub>A</sub>=25°C)

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 mA at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 500 mA at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 A at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 2 A	H <sub>FE</sub>	100 100 80 30	-- 300 -- --	--
Collector Base Cutoff Current at V <sub>CB</sub> = 60V	I <sub>CBO</sub>	--	100	nA
Emitter Base Cutoff Current at V <sub>EB</sub> = 5.6 V	I <sub>EBO</sub>	--	100	nA
Collector Base Breakdown Voltage at I <sub>C</sub> = 100 μA	V <sub>(BR)CBO</sub>	80	--	V
Collector Emitter Breakdown Voltage at I <sub>C</sub> = 10 mA	V <sub>(BR)CEO</sub>	60	--	V
Emitter Base Breakdown Voltage at I <sub>E</sub> = 100 μA	V <sub>(BR)EBO</sub>	7	--	V
Collector Emitter Saturation Voltage at I <sub>C</sub> = 500 mA, I <sub>B</sub> = 50 mA at I <sub>C</sub> = 1 A, I <sub>B</sub> = 100 mA	V <sub>CE(sat)</sub>	-- --	250 500	mV
Base Emitter Saturation Voltage at I <sub>C</sub> = 1 A, I <sub>B</sub> = 100 mA	V <sub>BE(sat)</sub>	--	1.1	V
Base Emitter On Voltage at V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 A	V <sub>BE(on)</sub>	--	1	V
Transition Frequency at V <sub>CE</sub> = 10 V, I <sub>C</sub> = 50 mA, f = 100 MHz	F <sub>T</sub>	150	--	MHz
Output Capacitance at V <sub>CB</sub> = 10 V, f = 1 MHz	C <sub>ob</sub>	--	10	pF



### PNP Electrical Characteristics (T<sub>A</sub>=25°C)

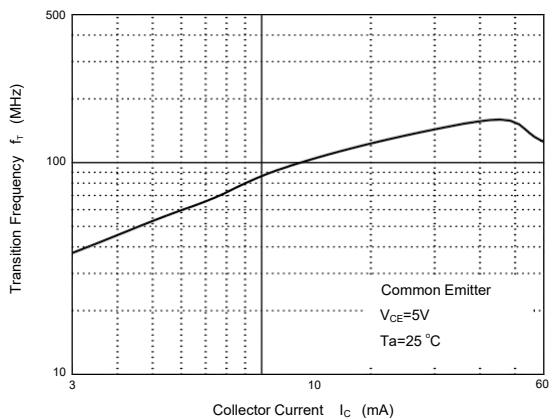
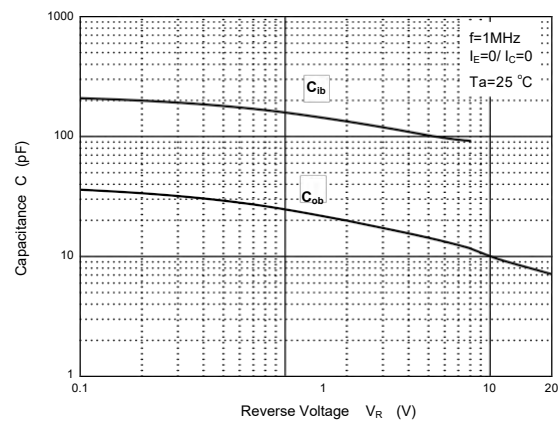
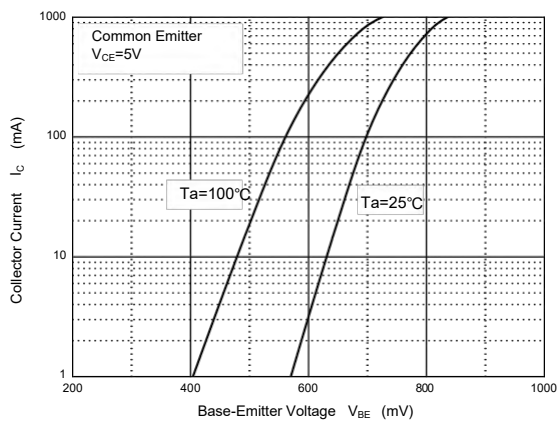
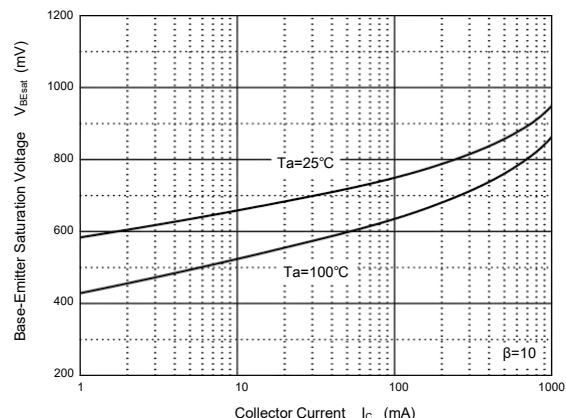
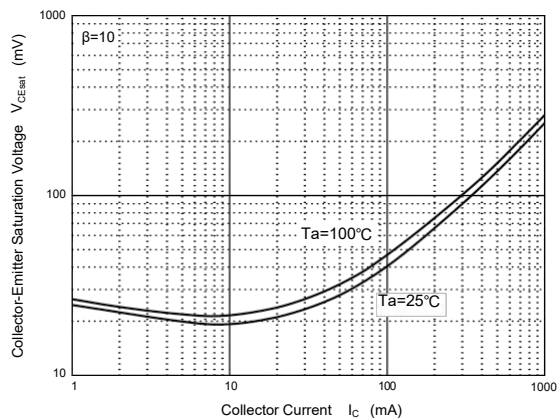
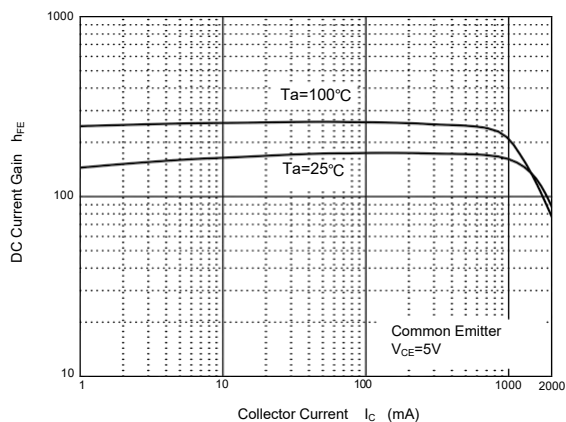
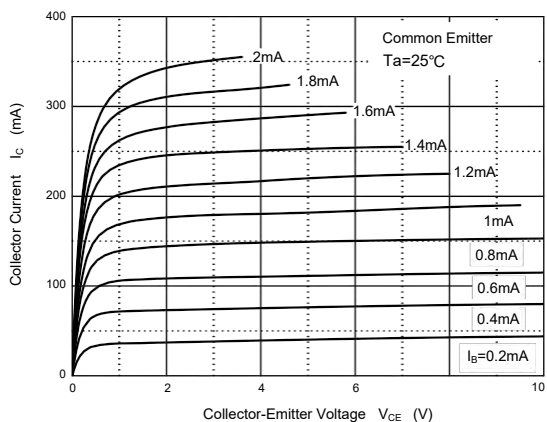
Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at V <sub>CE</sub> = -5 V, I <sub>C</sub> = -1 mA at V <sub>CE</sub> = -5 V, I <sub>C</sub> = -500 mA at V <sub>CE</sub> = -5 V, I <sub>C</sub> = -1 A at V <sub>CE</sub> = -5 V, I <sub>C</sub> = -2 A	H <sub>FE</sub>	100 100 80 15	-- 300 -- --	--
Collector Base Cutoff Current at V <sub>CB</sub> = -60V	-I <sub>CBO</sub>	--	100	nA
Emitter Base Cutoff Current at V <sub>EB</sub> = -5.6 V	-I <sub>EBO</sub>	--	100	nA
Collector Base Breakdown Voltage at I <sub>C</sub> = -100 μA	-V <sub>(BR)CBO</sub>	80	--	V
Collector Emitter Breakdown Voltage at I <sub>C</sub> = -10 mA	-V <sub>(BR)CEO</sub>	60	--	V
Emitter Base Breakdown Voltage at I <sub>E</sub> = -100 μA	-V <sub>(BR)EBO</sub>	7	--	V
Collector Emitter Saturation Voltage at I <sub>C</sub> = -500 mA, I <sub>B</sub> = -50 mA at I <sub>C</sub> = -1 A, I <sub>B</sub> = -100 mA	-V <sub>CE(sat)</sub>	-- --	300 600	mV
Base Emitter Saturation Voltage at I <sub>C</sub> = -1 A, I <sub>B</sub> = -100 mA	-V <sub>BE(sat)</sub>	--	1.2	V
Base Emitter On Voltage at V <sub>CE</sub> = -5 V, I <sub>C</sub> = -1 A	-V <sub>BE(on)</sub>	--	1	V
Transition Frequency at V <sub>CE</sub> = -10 V, I <sub>C</sub> = -50 mA, f = 100 MHz	F <sub>T</sub>	150	--	MHz
Output Capacitance at V <sub>CB</sub> = -10 V, f = 1 MHz	C <sub>ob</sub>	--	10	pF



# MMDT5491SG

## Complementary Medium Power Transistors

### NPN Typical Characteristic Curves

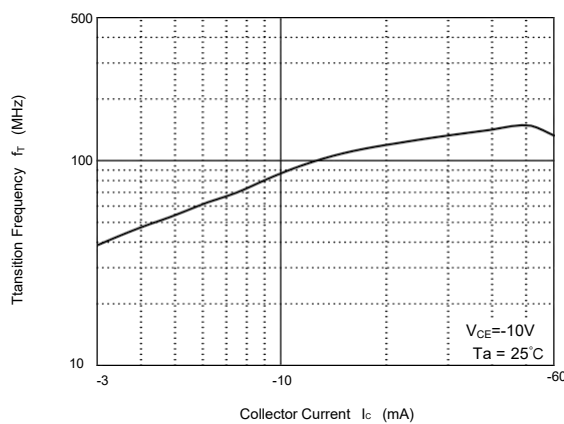
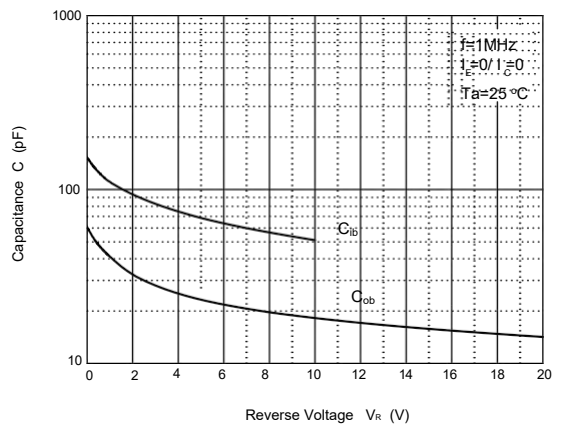
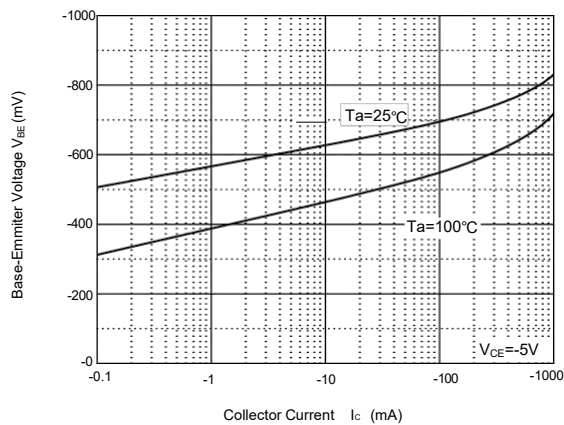
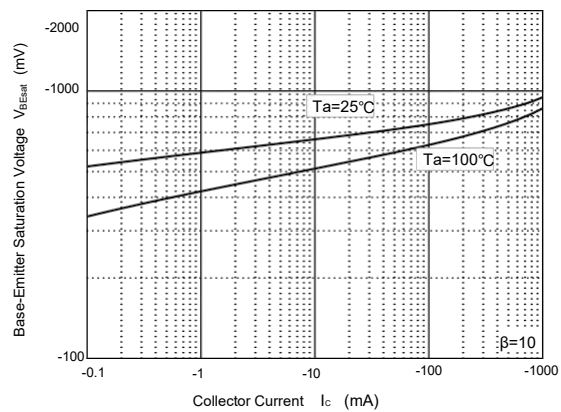
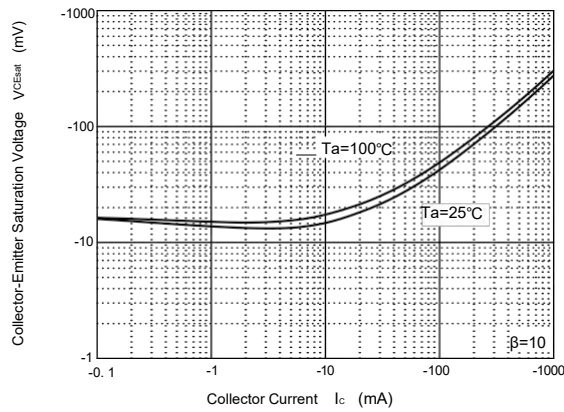
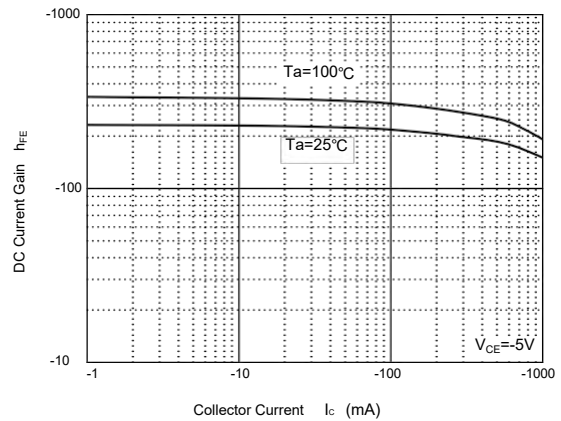
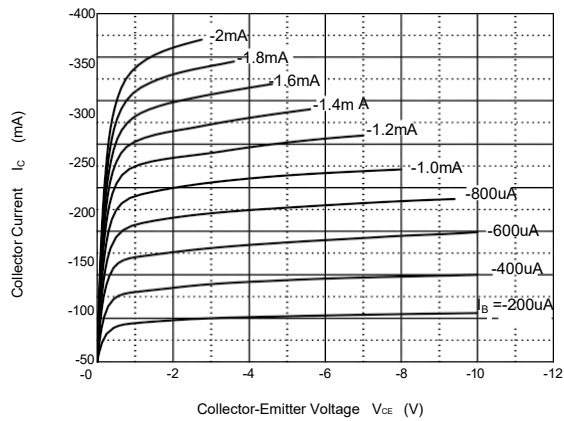




# MMDT5491SG

## Complementary Medium Power Transistors

### PNP Typical Characteristic Curves





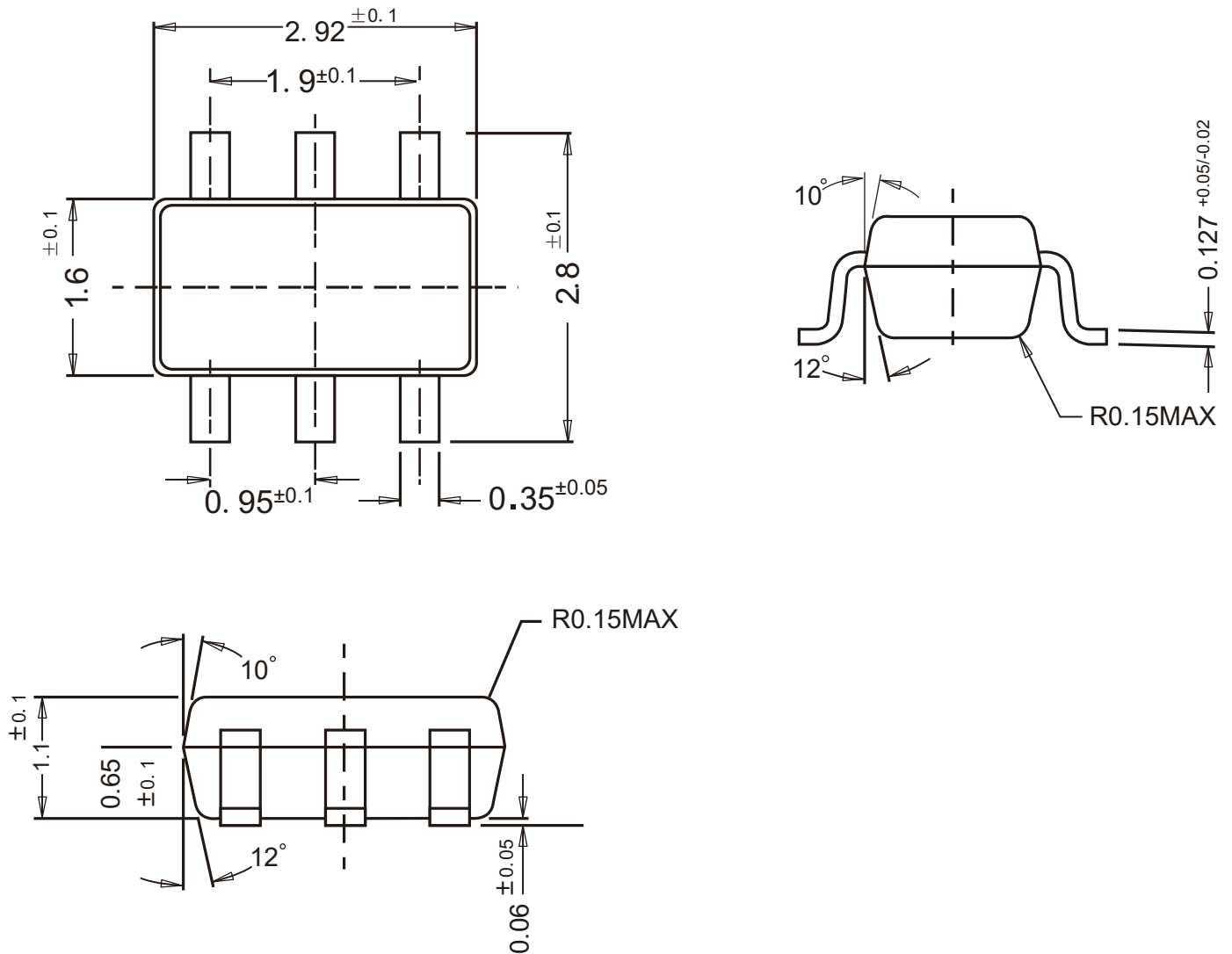
# MMDT5491SG

## Complementary Medium Power Transistors

### Package Outline

SOT-23-6

Dimensions in mm



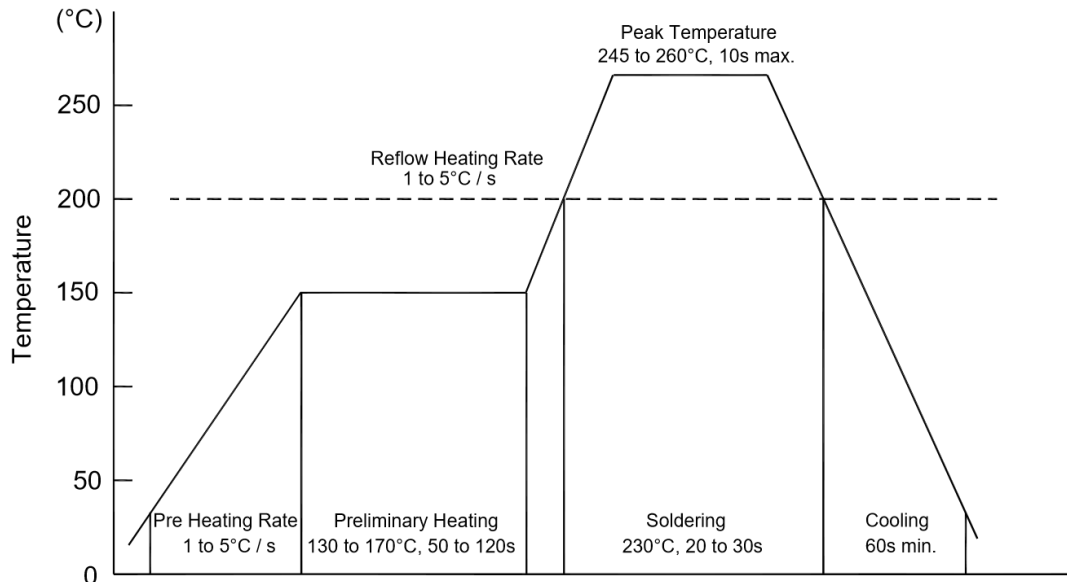
### Ordering Information

Device	Package	Shipping
MMDT5491SG	SOT-23-6	3,000PCS/Reel&7inches



### Conditions of Soldering and Storage

#### ◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

#### ◆ Conditions of hand soldering

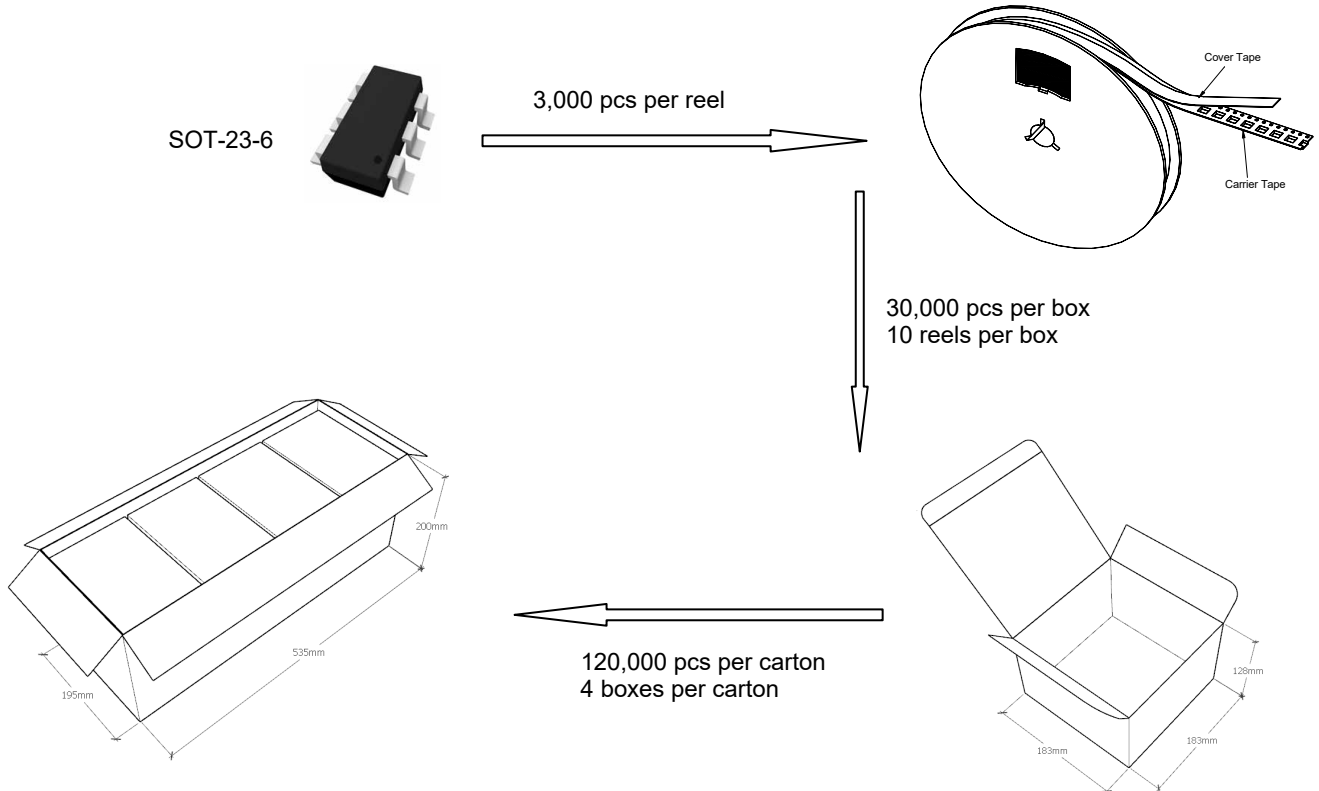
- Temperature: 370 °C
- Time: 3s max.
- Times: one time

#### ◆ Storage conditions

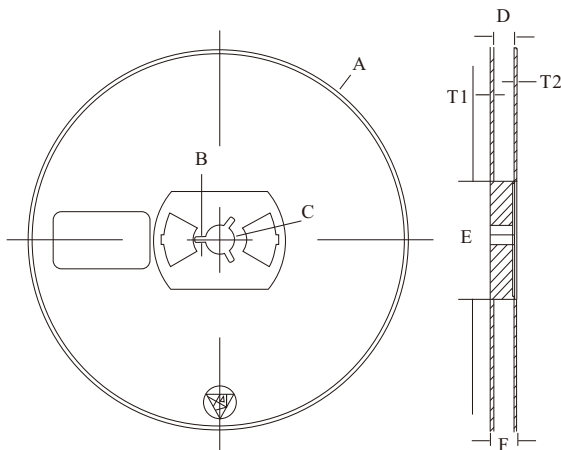
- **Temperature**  
5 to 40 °C
- **Humidity**  
30 to 80% RH
- **Recommended period**  
One year after manufacturing

### Package Specifications

- The method of packaging

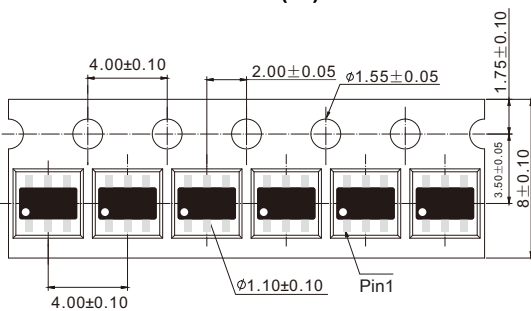


### ◆ Embossed tape and reel data



Symbol	Value (unit: mm)
A	Ø 177.8±1
B	2.7±0.2
C	Ø 13.5±0.2
E	Ø 54.5±0.2
F	12.3±0.3
D	9.6+2/-0.3
T1	1.0±0.2
T2	1.2±0.2

### Reel (7")



### Tape (8mm)