



# 2SC6043

## Bipolar Transistor 50V, 2A, Low VCE(sat) NPN Single MP

ON Semiconductor®

http://onsemi.com

### Applications

- Voltage regulators, relay drivers, lamp drivers, electrical equipment

### Features

- Adoption of MBIT process
- High current capacitance
- Low collector to emitter saturation voltage
- High-speed switching

### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

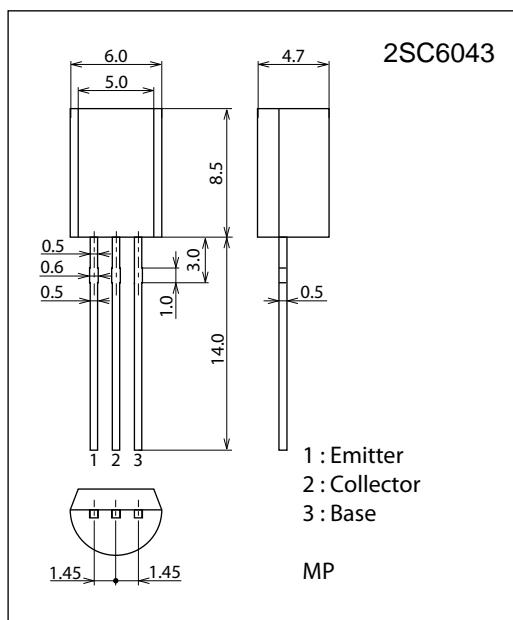
Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	V <sub>CBO</sub>		80	V
Collector to Emitter Voltage	V <sub>CES</sub>		80	V
Collector to Emitter Voltage	V <sub>CEO</sub>		50	V
Emitter to Base Voltage	V <sub>EBO</sub>		6	V
Collector Current	I <sub>C</sub>		2	A
Collector Current (Pulse)	I <sub>CP</sub>		4	A
Base Current	I <sub>B</sub>		400	mA
Collector Dissipation	P <sub>C</sub>		1	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>Stg</sub>		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

### Package Dimensions

unit : mm (typ)

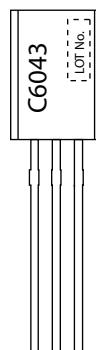
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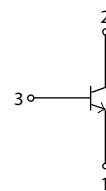
### Product & Package Information

- Package : MP
- JEITA, JEDEC : SC-51, TO-92(1-WATT), TO-226AE
- Minimum Packing Quantity : 1,000 pcs./box

### Marking



### Electrical Connection

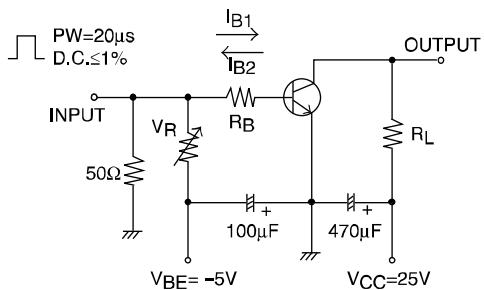


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## Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=40\text{V}, I_E=0\text{A}$			1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0\text{A}$			1	$\mu\text{A}$
DC Current Gain	$h_{FE}^1$	$V_{CE}=2\text{V}, I_C=100\text{mA}$	200		560	
	$h_{FE}^2$	$V_{CE}=2\text{V}, I_C=1.5\text{A}$	40			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=300\text{mA}$		420		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		9		$\text{pF}$
Collector to Emitter Saturation Voltage	$V_{CE(\text{sat})}$	$I_C=1\text{A}, I_B=50\text{mA}$		150	300	$\text{mV}$
Base to Emitter Saturation Voltage	$V_{BE(\text{sat})}$	$I_C=1\text{A}, I_B=50\text{mA}$		0.94	1.2	$\text{V}$
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0\text{A}$	80			$\text{V}$
Collector to Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu\text{A}, R_{BE}=0\Omega$	80			$\text{V}$
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	50			$\text{V}$
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0\text{A}$	6			$\text{V}$
Turn-ON Time	$t_{on}$	See specified Test Circuit		35		ns
Storage Time	$t_{stg}$			330		ns
Fall Time	$t_f$			40		ns

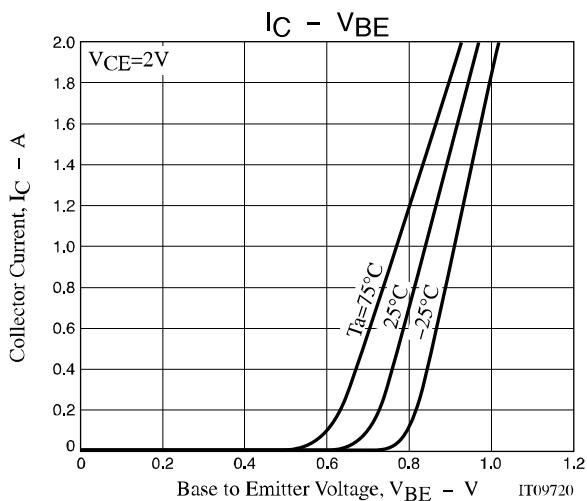
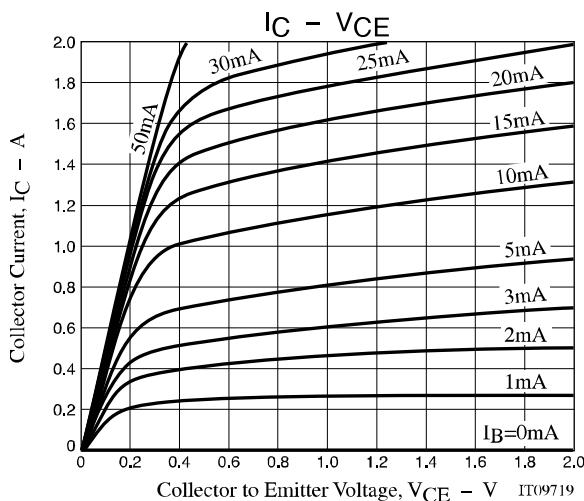
## Switching Time Test Circuit



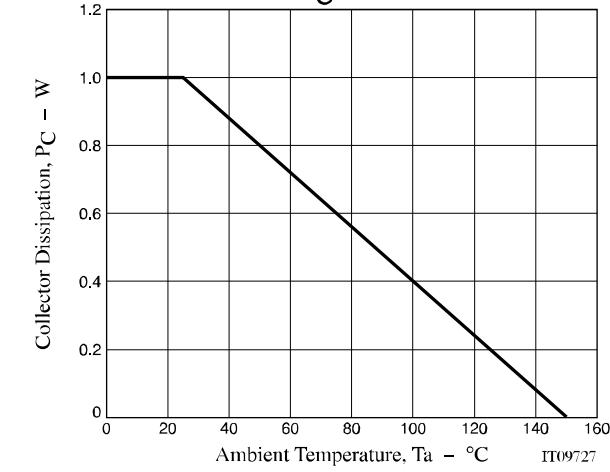
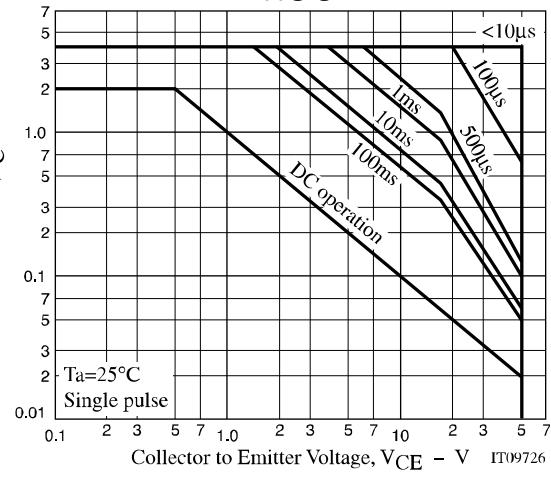
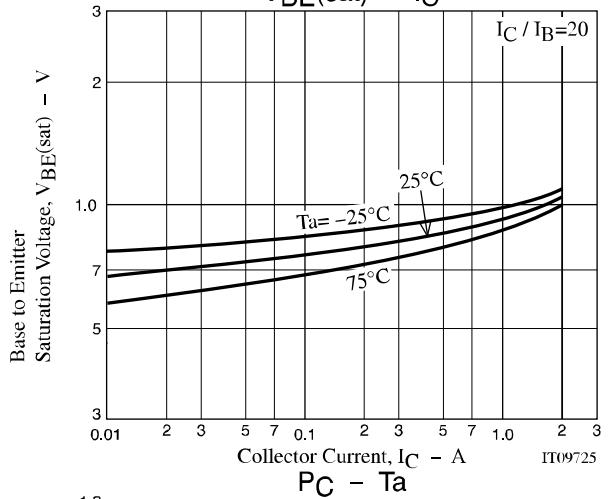
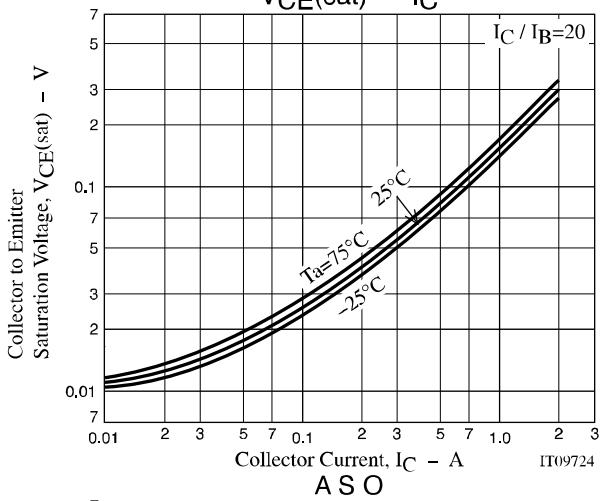
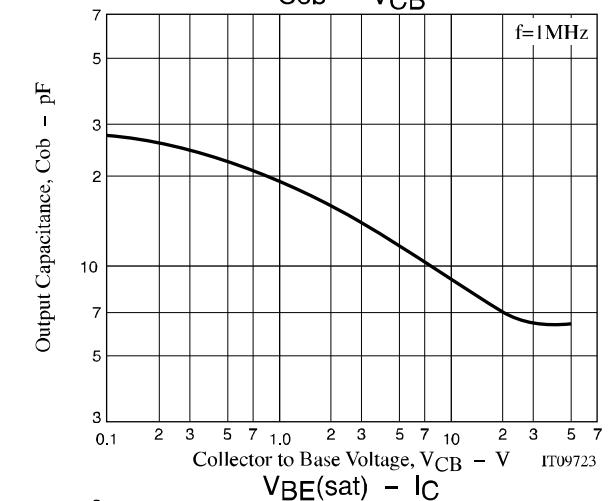
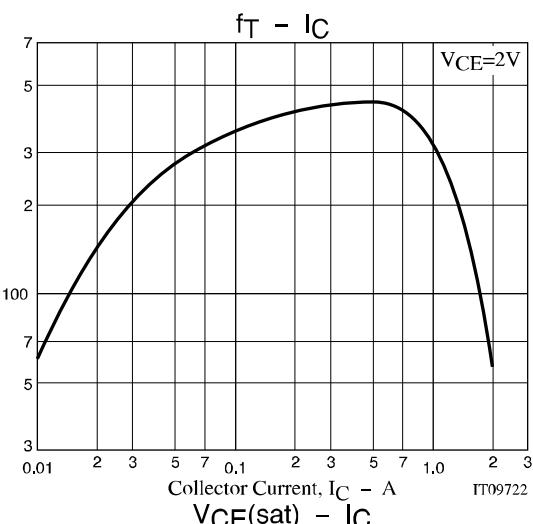
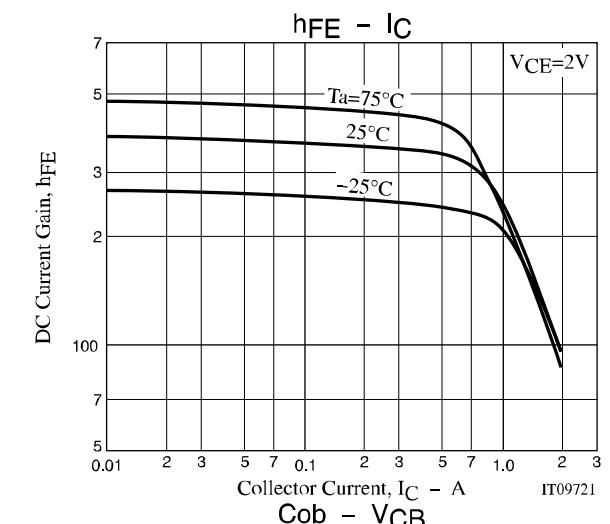
$$I_C = 10I_B1 = -10I_B2 = 700\text{mA}$$

## Ordering Information

Device	Package	Shipping	Memo
2SC6043	MP	500pcs./bag	Pb Free
2SC6043-AE		1,000pcs./box	

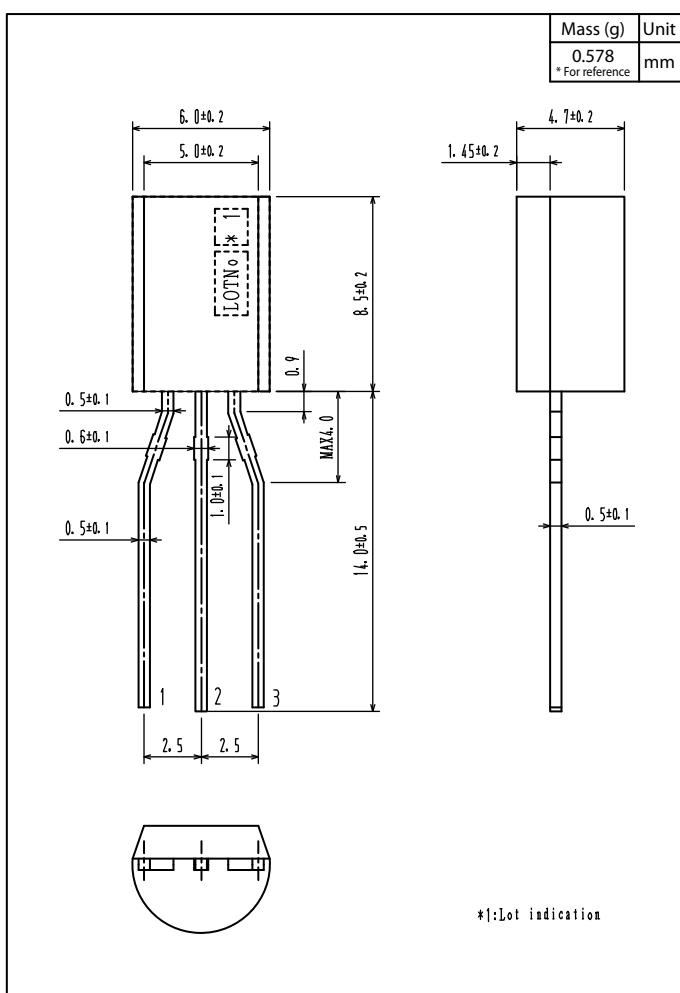


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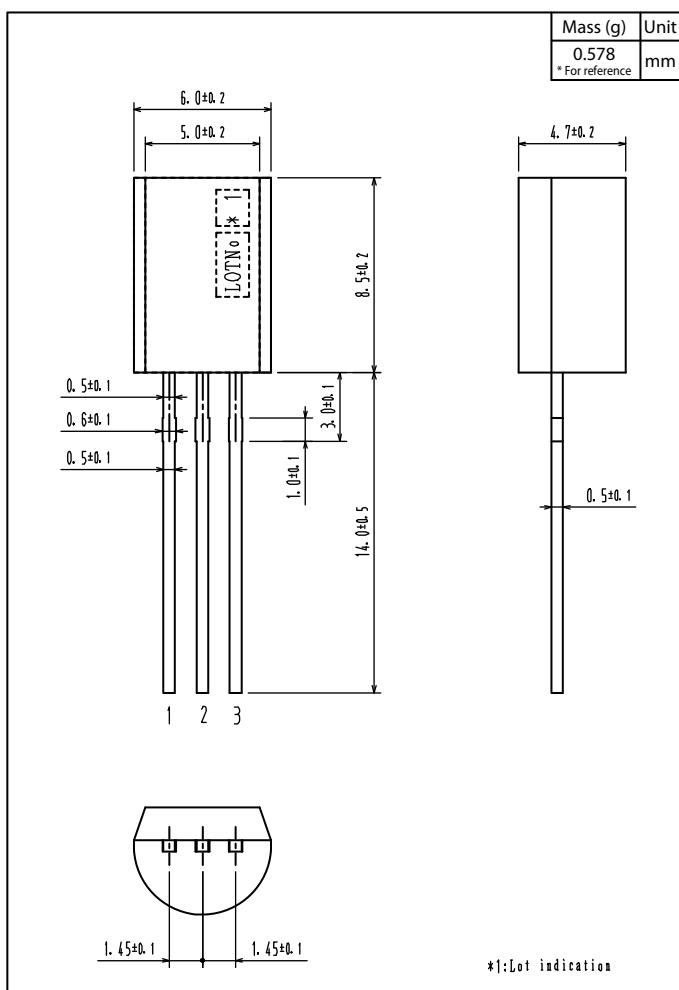
**Outline Drawing**

2SC6043-AE



## Outline Drawing

2SC6043



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