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2SC6043

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

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 $T_a = 25^\circ\text{C}$

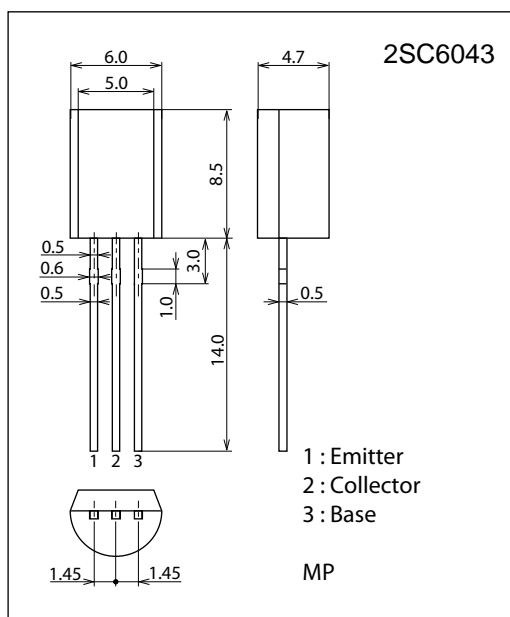
Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	V_{CB0}		80	V
Collector to Emitter Voltage	V_{CES}		80	V
Collector to Emitter Voltage	V_{CEO}		50	V
Emitter to Base Voltage	V_{EBO}		6	V
Collector Current	I_C		2	A
Collector Current (Pulse)	I_{CP}		4	A
Base Current	I_B		400	mA
Collector Dissipation	P_C		1	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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)

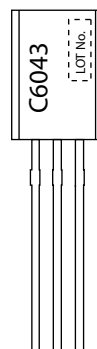
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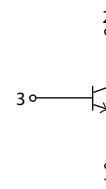
Product & Package Information

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

Marking



Electrical Connection

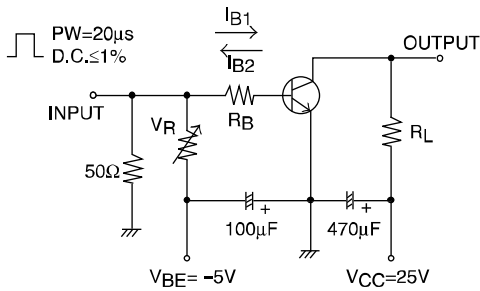


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Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=40\text{V}, I_E=0\text{A}$			1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0\text{A}$			1	μA
DC Current Gain	h_{FE1}	$V_{CE}=2\text{V}, I_C=100\text{mA}$	200		560	
	h_{FE2}	$V_{CE}=2\text{V}, I_C=1.5\text{A}$	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		pF
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1\text{A}, I_B=50\text{mA}$		150	300	mV
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1\text{A}, I_B=50\text{mA}$		0.94	1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0\text{A}$	80			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu\text{A}, R_{BE}=0\Omega$	80			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	50			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0\text{A}$	6			V
Turn-ON Time	t_{on}	See specified Test Circuit		35		ns
Storage Time	t_{stg}			330		ns
Fall Time	t_f			40		ns

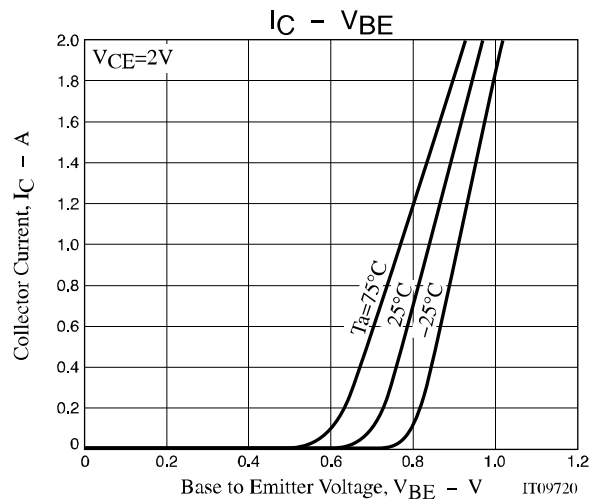
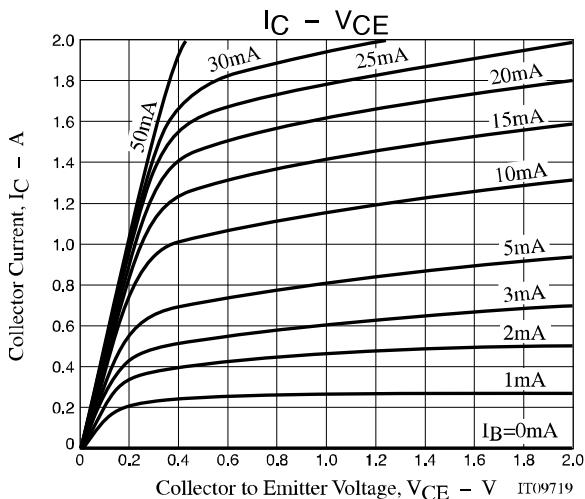
Switching Time Test Circuit

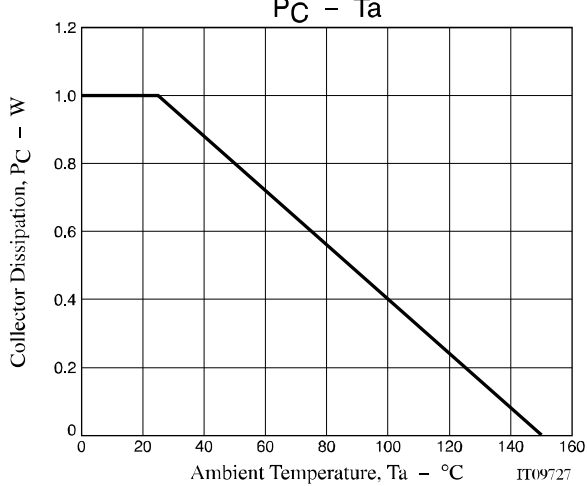
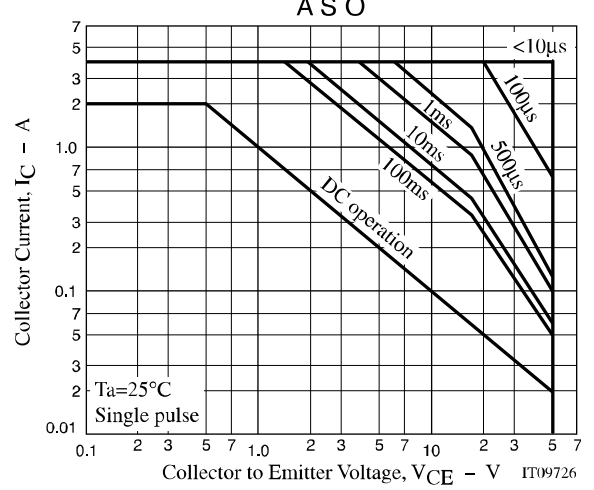
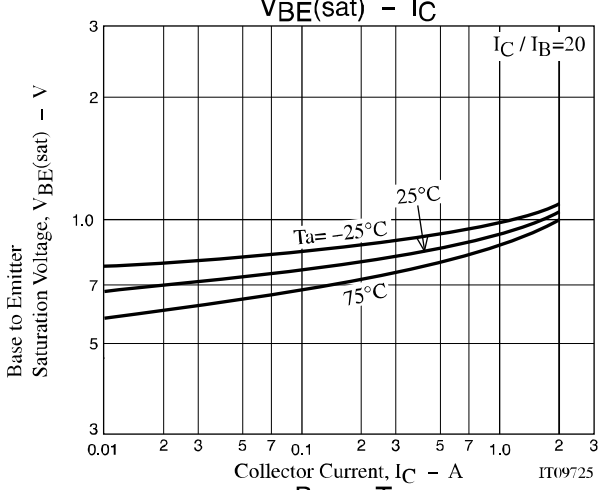
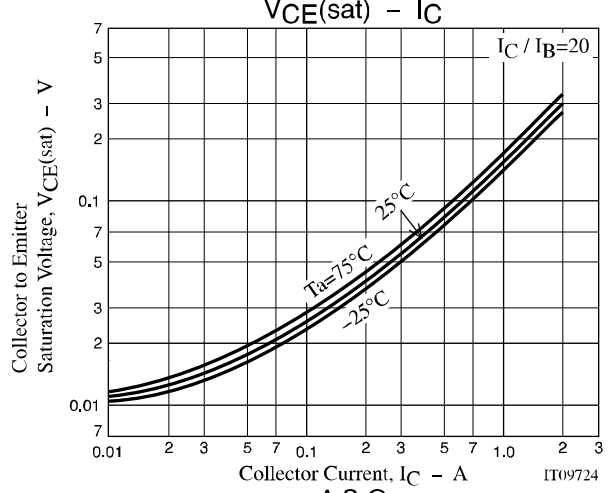
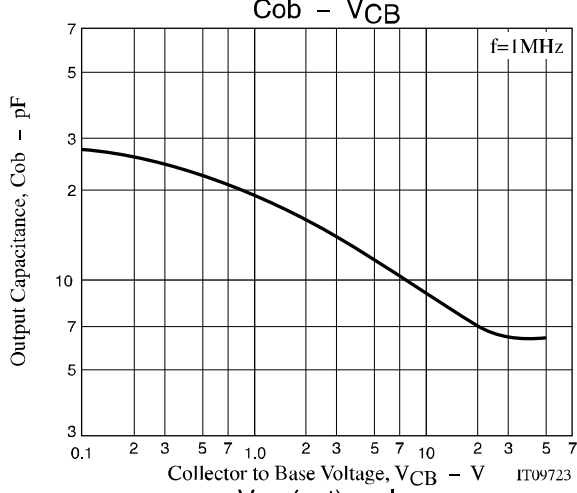
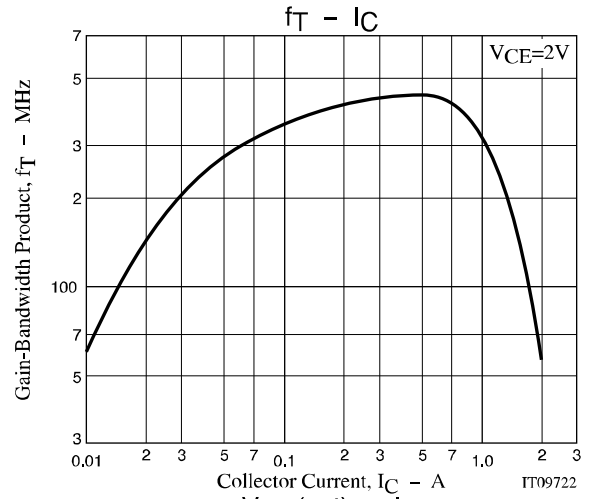
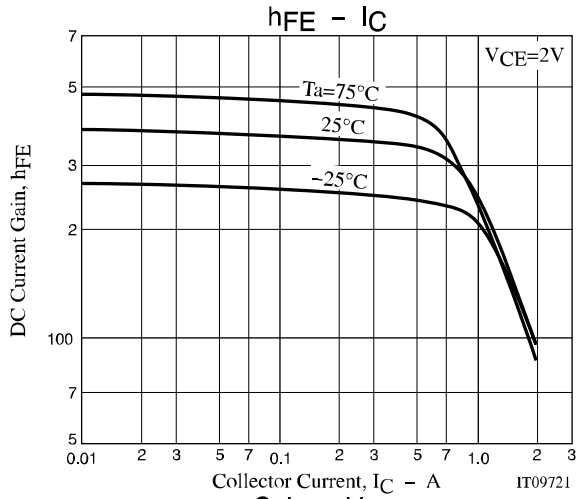


$$I_C = 10I_{B1} = -10I_{B2} = 700\text{mA}$$

Ordering Information

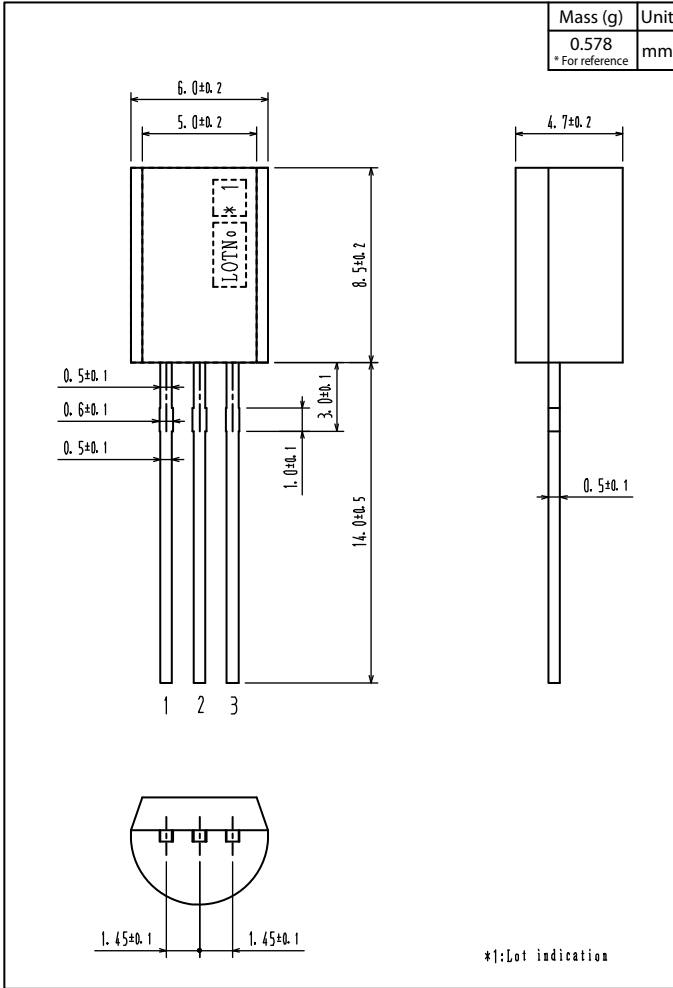
Device	Package	Shipping	Memo
2SC6043	MP	500pcs./bag	Pb Free
2SC6043-AE		1,000pcs./box	





Outline Drawing

2SC6043



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