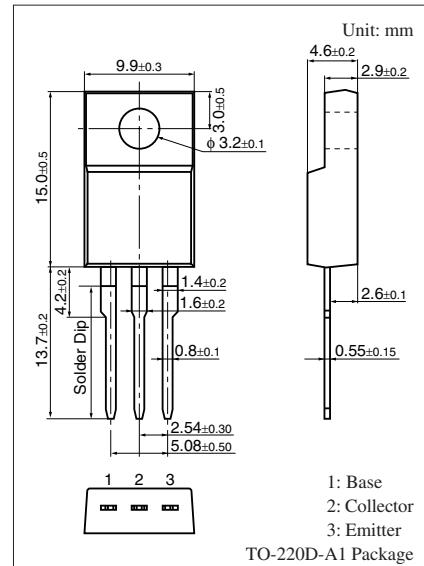# 2SC4953

Silicon NPN triple diffusion planar type

For high breakdown voltage high-speed switching

■ Features

- High-speed switching
- High collector-base voltage (Emitter open) V_{CBO}
- Wide safe operation area
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Dielectric breakdown voltage of the package: > 5 kV

Unit: mm

1: Base
2: Collector
3: Emitter
TO-220D-A1 Package

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter		Symbol	Rating	Unit
Collector-base voltage (Emitter open)		V_{CBO}	500	V
Collector-emitter voltage (E-B short)		V_{CES}	500	V
Collector-emitter voltage (Base open)		V_{CEO}	400	V
Emitter-base voltage (Collector open)		V_{EBO}	7	V
Base current		I_B	1.2	A
Collector current		I_C	3	A
Peak collector current		I_{CP}	6	A
Collector power	$T_C = 25°C$	P_C	30	W
dissipation			2.0	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

■ Electrical Characteristics $T_a = 25°C ± 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 10$ mA, $I_B = 0$	400			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 500$ V, $I_E = 0$			100	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 5$ V, $I_C = 0$			100	μA
Forward current transfer ratio	h_{FE1}	$V_{CE} = 5$ V, $I_C = 0.1$ A	10			—
	h_{FE2}	$V_{CE} = 2$ V, $I_C = 1.2$ A	8		40	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1.5$ A, $I_B = 0.3$ A			1.0	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1.5$ A, $I_B = 0.3$ A			1.5	V
Transition frequency	f_T	$V_{CE} = 10$ V, $I_C = 0.2$ A, f = 1 MHz		10		MHz
Turn-on time	t_{on}	$I_C = 1.5$ A			1.0	μs
Storage time	t_{stg}	$I_{B1} = 0.15$ A, $I_{B2} = −0.3$ A			3.0	μs
Fall time	t_f	$V_{CC} = 200$ V			0.3	μs

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.