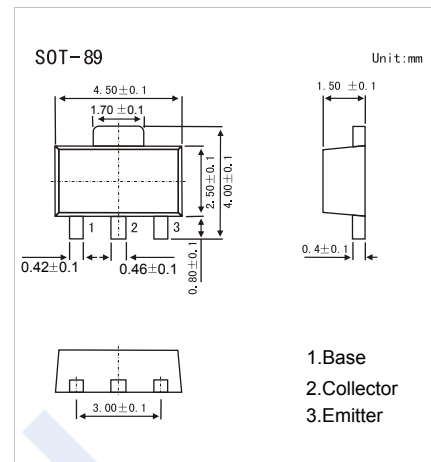


NPN Transistors

2SD2153

■ Features

- Low saturation voltage,
typically $V_{CE(sat)} = 0.12V$ at $I_C = I_B = 1A / 20mA$
- Excellent DC current gain characteristics.



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	30	V
Collector - Emitter Voltage	V_{CEO}	25	
Emitter - Base Voltage	V_{EBO}	6	
Collector Current - Continuous	I_C	2	A
Collector Current - Pulse (Note.1)	I_{CP}	3	
Collector Power Dissipation (Note.2)	P_C	0.5	W
		2	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: Single pulse, $P_w=10ms$

Note.2: Mounted on a 40 X40X t0.7mm Ceramic substrate

■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 100 \mu A, I_E = 0$	30			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 1 mA, I_B = 0$	25			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100 \mu A, I_C = 0$	6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 20 V, I_E = 0$			0.5	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5 V, I_C = 0$			0.5	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1 A, I_B = 20 mA$			0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1 A, I_B = 20 mA$			1.2	
DC current gain	h_{FE}	$V_{CE} = 6 V, I_C = 500 mA$	560		2700	
Collector output capacitance	C_{ob}	$V_{CB} = 10 V, I_E = 0, f = 1 MHz$		22		pF
Transition frequency	f_T	$V_{CE} = 10 V, I_E = -10 mA, f = 100 MHz$		110		MHz

■ Classification of h_{FE}

Type	2SD2153-U	2SD2153-V	2SD2153-W
Range	560-1200	820-1800	1200-2700
Marking	DNU*	DNV*	DNW*

NPN Transistors

2SD2153

Typical Characteristics

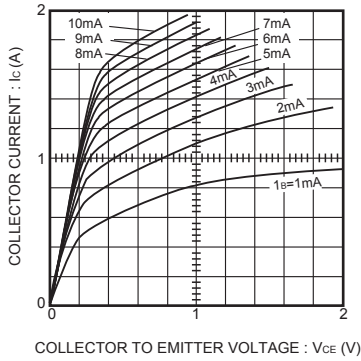


Fig.1 Ground emitter output characteristics

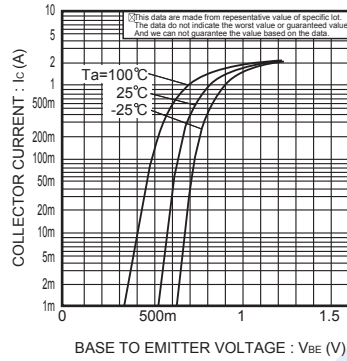


Fig.2 Ground emitter propagation characteristics

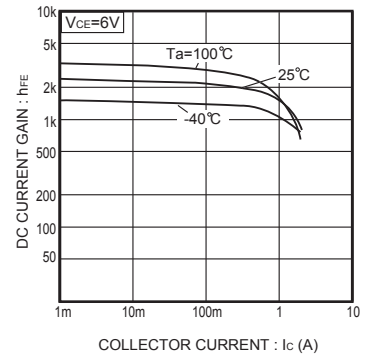


Fig.3 DC current gain

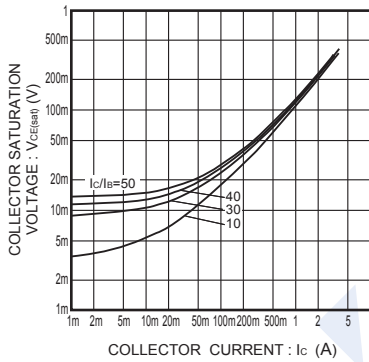


Fig.4 Collector-emitter saturation voltage vs. collector current

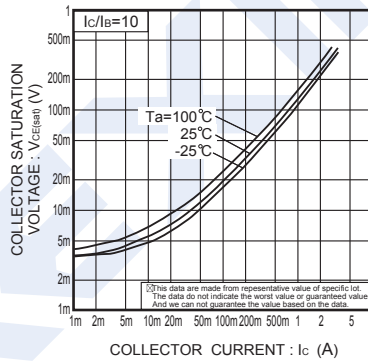


Fig.5 Collector-emitter saturation voltage vs. collector current

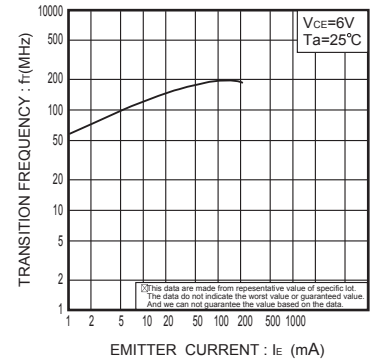


Fig.6 Gain bandwidth product vs. emitter current

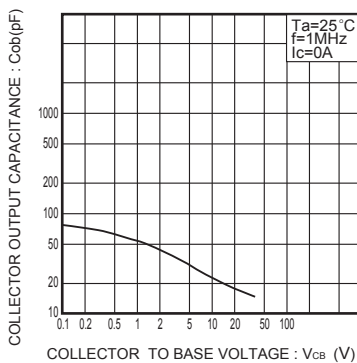


Fig.7 Collector output capacitance vs. collector-base voltage

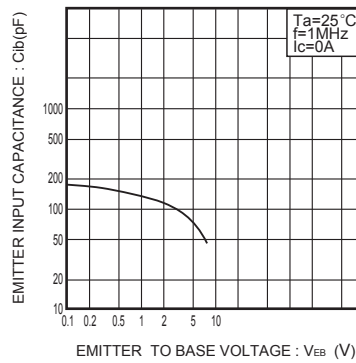


Fig.8 Emitter input capacitance vs. emitter-base voltage

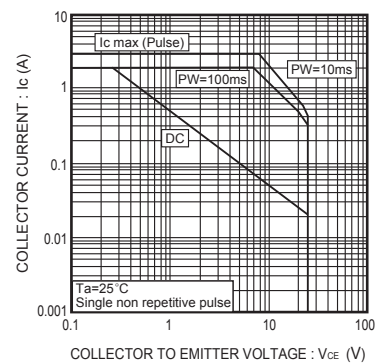


Fig.9 Safe operating area