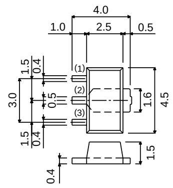
High gain amplifier transistor (25V, 2A)

2SD2153

●Features

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

●External dimensions (Unit : mm)



(1) Base
(2) Collector
(3) Emitter

ROHM : MPT3
EIAJ : SC-62

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	30	V
Collector-emitter voltage	V_{CEO}	25	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	I_C	2	A(DC)
		3	A(Pulse) ∗1
Collector power dissipation	P_C	0.5	W
		2 ∗2	
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55 to +150	°C

∗1 Single pulse, Pw=10ms
∗2 Mounted on a 40 × 40 × ^{t}0.7mm Ceramic substrate

●Packaging specifications and h_{FE}

Type	2SD2153
Package	MPT3
h_{FE}	UVW
Marking	DN ∗
Code	T100
Basic ordering unit (pieces)	1000

∗ Denotes h_{FE}

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	30	−	−	V	I_C = 50μA
Collector-emitter breakdown voltage	BV_{CEO}	25	−	−	V	I_C = 1mA
Emitter-base breakdown voltage	BV_{EBO}	6	−	−	V	I_E = 50μA
Collector cutoff current	I_{CBO}	−	−	0.5	μA	V_{CB} = 20V
Emitter cutoff current	I_{EBO}	−	−	0.5	μA	V_{EB} = 5V
Collector-emitter saturation voltage	$V_{CE(sat)}$	−	0.12	0.5	V	I_C/I_B = 1A/20mA ∗
DC current transfer ratio	h_{FE}	560	−	2700	−	V_{CE}/I_C = 6V/0.5A
Transition frequency	f_T	−	110	−	MHz	V_{CE} = 10V , I_E = −10mA , f= 100MHz
Output capacitance	Cob	−	22	−	pF	V_{CB} = 10V , I_E = 0A , f = 1MHz

∗ Measured using pulse current.

●Electrical characteristics curves

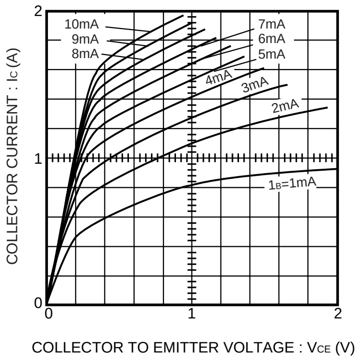


Fig.1 Ground emitter output characteristics

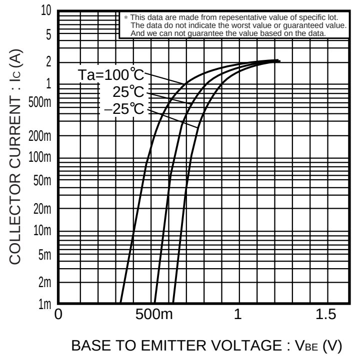


Fig.2 Ground emitter propagation characteristics

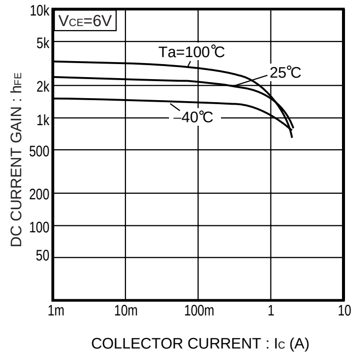


Fig.3 DC current gain

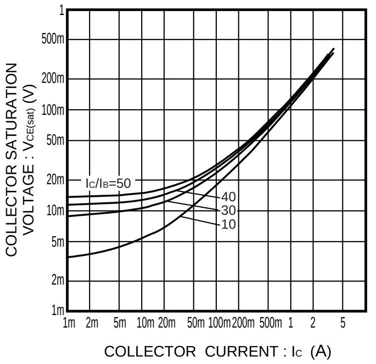


Fig.4 Collector-emitter saturation voltage vs. collector current

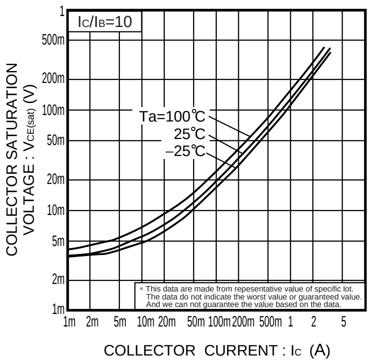


Fig.5 Collector-emitter saturation voltage vs. collector current

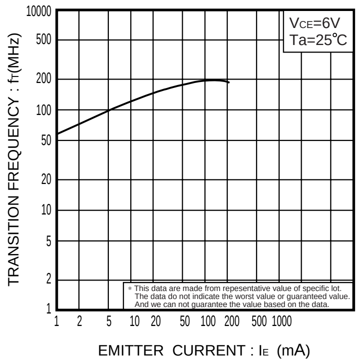


Fig.6 Gain bandwith product vs. emitter current

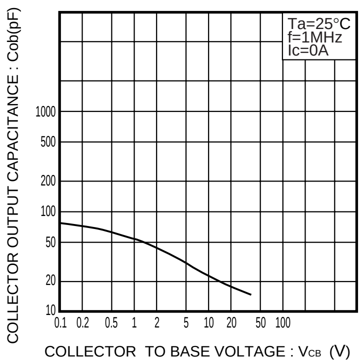


Fig.7 Collector output capacitance vs. collector-base voltage

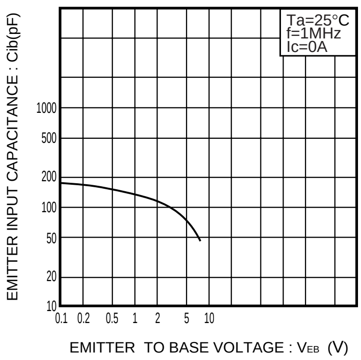


Fig.8 Emitter input capacitance vs. emitter-base voltage

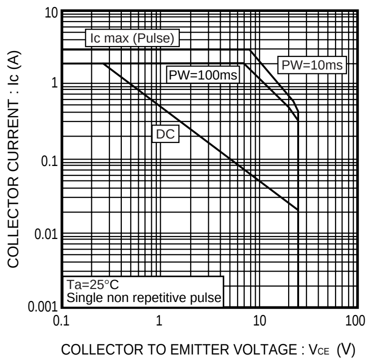


Fig.9 Safe operating area

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