

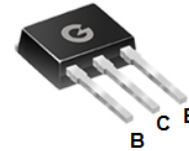
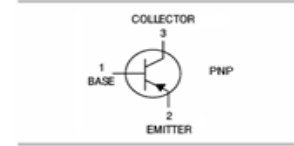
Features

- High breakdown voltage and high current
- Good h_{FE} linearity
- Low $V_{CE(sat)}$
- RoHS compliant with Halogen-free

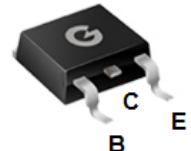
HF

Mechanical Data

- Case: TO-251, TO-252
- Molding compound: UL flammability classification rating 94V-0
- Terminal s: Tin-plated; solderability per MIL-STD-202, Method 208



TO-251



TO-252

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
2SB1241I-Q	TO-251	80pcs / Tube	B1241I
2SB1241I-R	TO-251	80pcs / Tube	B1241I
2SB1241D-Q	TO-252	80pcs / Tube or 2500pcs / Tape & Reel	B1241D
2SB1241D-R	TO-252	80pcs / Tube or 2500pcs / Tape & Reel	B1241D

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V_{CBO}	-80	V
Collector-Emitter Breakdown Voltage	V_{CEO}	-80	V
Emitter-Base Breakdown Voltage	V_{EBO}	-5	V
Collector Current (Continuous)	I_C	-1	A
Collector Current (Pulse) ^{*1}	I_{CM}	-2	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (Collector) ^{*2}	P_C	1	W
Junction Temperature	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Notes:

1. Single pulse, $P_w=100\text{ms}$.
2. Printed circuit board, 1.7mm thick, collector copper plating 100mm² or larger.

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -50\mu\text{A}, I_E = 0$	-80	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, I_B = 0$	-80	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -50\mu\text{A}, I_C = 0$	-5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -60\text{V}, I_E = 0$	-	-	-1	μA
Emitter Cut-off Current	I_{EBO}	$I_C = 0, V_{EB} = -4\text{V}$	-	-	-1	μA
DC Current Gain	h_{FE}	$V_{CE} = -3\text{V}, I_C = -0.1\text{A}$	120	-	390	-
Output Capacitance	C_{OB}	$V_{CB} = -10\text{V}, I_E = 0\text{A}$ $f = 1\text{MHz}$	-	25	-	pF

CLASSIFICATION h_{FE}

Rank	Q	R
Range	120-270	180-390

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

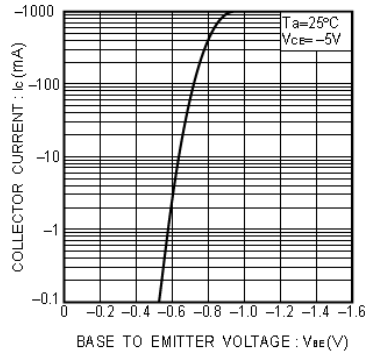


Fig.1 Grounded emitter propagation characteristics

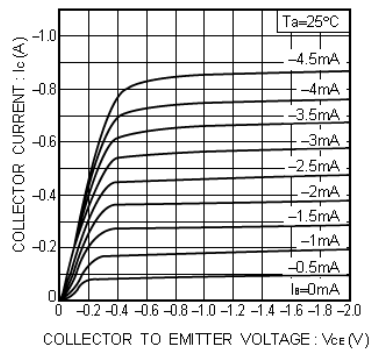


Fig.2 Grounded emitter output characteristics

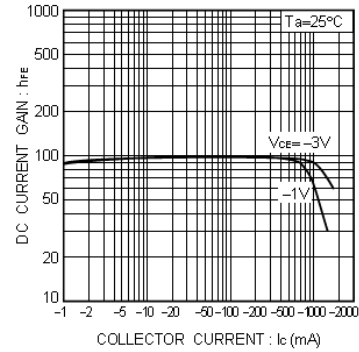


Fig.3 DC current gain vs. collector current

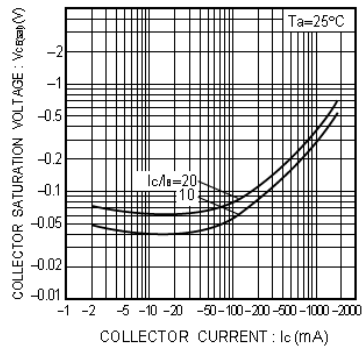


Fig.4 Collector-emitter saturation voltage vs. collector current

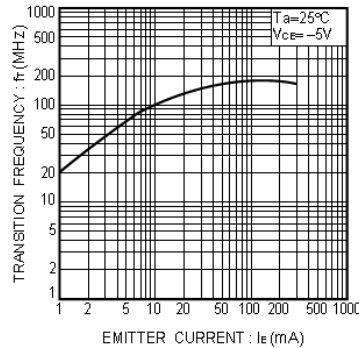


Fig.5 Gain bandwidth product vs. emitter current

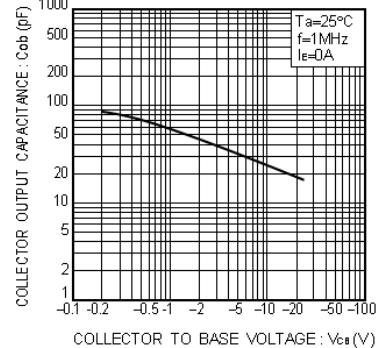


Fig.6 Collector output capacitance vs. collector-base voltage

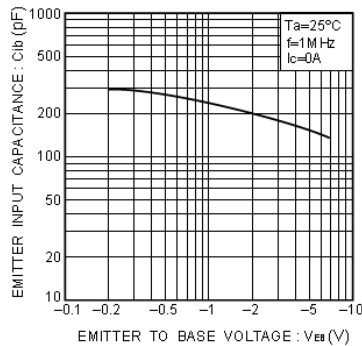


Fig.7 Emitter input capacitance vs. emitter-base voltage

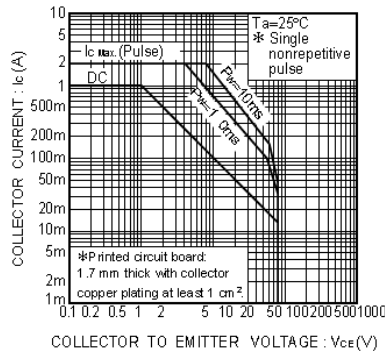


Fig.8 Safe operating area

Package Outline Dimensions (Unit: mm)

TO-251			
Dimension	Min.	Max.	
A	5.05	5.65	
B	5.80	6.40	
C	6.25	6.85	
D	2.20	2.40	
E	0.40	0.60	
F	11.00	11.60	
G	5.05	5.65	
H	2.10	2.50	
I	0.70	0.90	
J	4.00	4.40	
K	0.40	0.60	

TO-252			
Dimension	Min.	Max.	
A	5.05	5.65	
B	5.80	6.40	
C	6.25	6.85	
D	2.20	2.40	
E	0.40	0.60	
F	9.71	10.31	
G	5.05	5.65	
H	2.10	2.50	
I	0.70	0.90	
J	0.50	0.70	
K	0.40	0.60	

Mounting Pad Layout (Unit: mm)

TO-252	