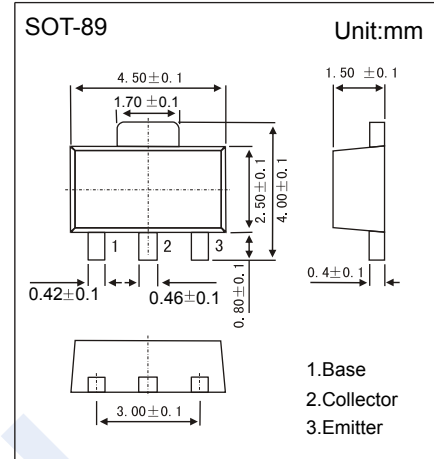


NPN Transistors

2SD2167

■ Features

- Collector Current Capability $I_C=2A$
- Collector Emitter Voltage $V_{CE0}=27V$



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	27	V
Collector - Emitter Voltage	V_{CEO}	27	
Emitter - Base Voltage	V_{EBO}	5	
Collector Current - Continuous	I_C	2	A
Collector Current - Pulse	I_{CP}	3	
Collector Power Dissipation (Note.1)	P_C	0.5 2	W
Junction Temperature	T_J	150	
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1 :Mounted on a 40×40× 0.7mm ceramic substrate

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C= 100 \mu A, I_E= 0$	27			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C= 1 mA, I_B= 0$	27			
Emitter - base breakdown voltage	V_{EBO}	$I_E= 100 \mu A, I_C= 0$	5			
Collector-base cut-off current	I_{CBO}	$V_{CB}= 20 V, I_E= 0$			1	uA
Emitter cut-off current	I_{EBO}	$V_{EB}= 5V, I_C=0$			1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=2 A, I_B=200mA$ $I_C=1 A, I_B=50mA$			1 0.5	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C=2 A, I_B=200mA$			1.2	
DC current gain	h_{FE}	$V_{CE}= 3V, I_C=0.5A$	56		270	
Collector output capacitance	C_{ob}	$V_{CB}= 10V, I_E=0, f=1MHz$		25		pF
Transition frequency	f_T	$V_{CE}= 3V, I_E=-0.5 A, f=30MHz$		100		MHz

■ Classification of h_{fe}

Type	2SD2167-N	2SD2167-P	2SD2167-Q
Range	56-120	82-180	120-270
Marking	DL N*	DL P*	DL Q*

NPN Transistors 2SD2167

■ Typical Characteristics

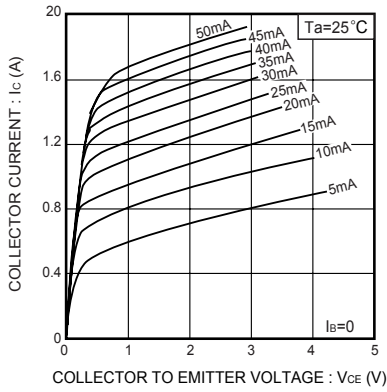


Fig.1 Ground emitter output characteristics

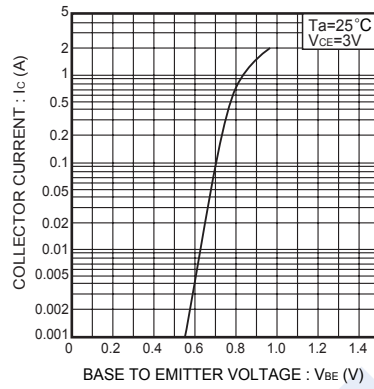


Fig.2 Ground emitter propagation characteristics

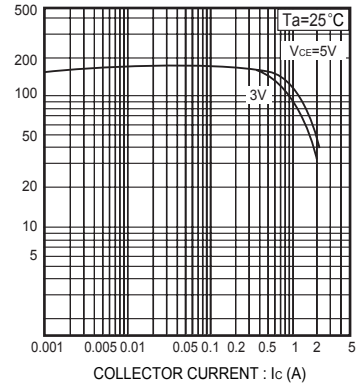


Fig.3 DC current gain vs. collector current

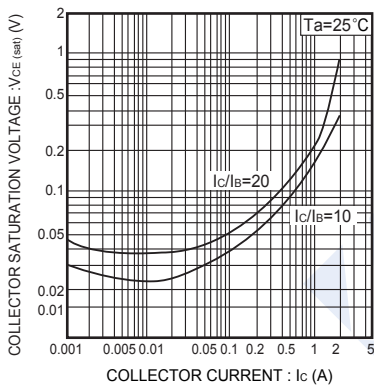


Fig.4 Collector-emitter saturation voltage vs. collector current

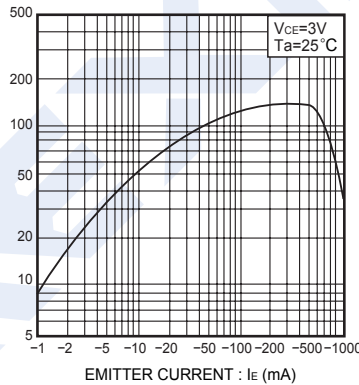


Fig.5 Resistance ratio vs. collector current

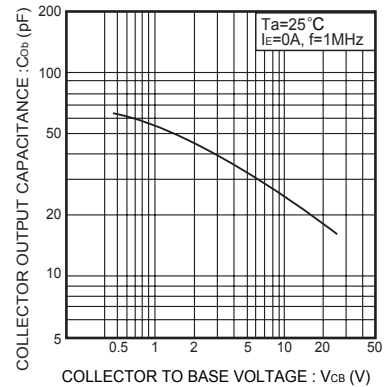


Fig.6 Collector output capacitance vs. collector-base voltage

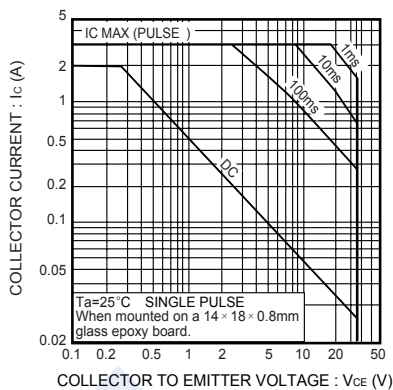


Fig.7 Safe operating area