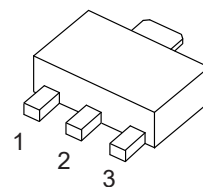


FEATURES

- ◆ Low $V_{CE(sat)}$, $V_{CE(sat)}=0.15V$ (typical).($I_C/I_B=500mA/50mA$)

SOT-89

RoHS
COMPLIANT



1.BASE
2.EMITTER
3.COLLECTOR

MAXIMUM RATINGS ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	40	V
Collector Emitter Voltage	V_{CEO}	32	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current - DC	I_C	1	A
Collector Current - Pulse ¹⁾	I_{CP}	2	A
Total Power Dissipation	P_{tot}	0.5 2 ²⁾	W
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature Range	T_{Stg}	- 55 to + 150	$^{\circ}C$

¹⁾ Single pulse, PW = 100 ms.

²⁾ When mounted on a 40 X 40 X 0.7 mm ceramic board.

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 3V$, $I_C = 100mA$ Current Gain Group P Q R	h_{FE} h_{FE} h_{FE}	82 120 180	- - -	180 270 390	- - -
Collector Base Breakdown Voltage at $I_C = 50\mu A$	$V_{(BR)CBO}$	40	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 1mA$	$V_{(BR)CEO}$	32	-	-	V
Emitter Base Breakdown Voltage at $I_E = 50\mu A$	$V_{(BR)EBO}$	5	-	-	V
Collector Cutoff Current at $V_{CB} = 20V$	I_{CBO}	-	-	0.5	μA
Emitter Cutoff Current at $V_{EB} = 4V$	I_{EBO}	-	-	0.5	μA
Collector Emitter Saturation Voltage at $I_C = 500mA$, $I_B = 50mA$	$V_{CE(sat)}$	-	-	0.4	V
Transition Frequency at $-I_E = 50mA$, $V_{CE} = 5V$, $f = 100MHz$	f_T	-	150	-	MHz
Output Capacitance at $V_{CB} = 10V$, $f = 1MHz$	C_{ob}	-	15	-	pF

TYPICAL CHARACTERISTICS

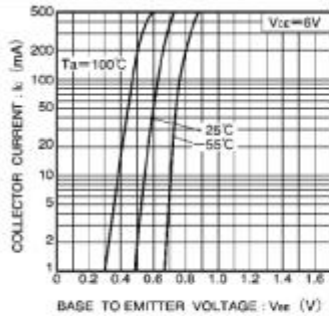


Fig.1 Grounded emitter propagation characteristics

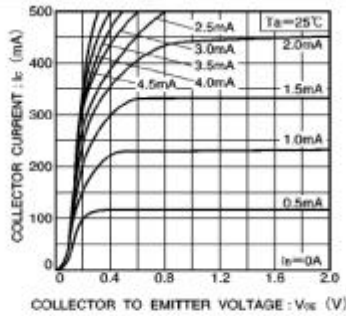


Fig.2 Grounded emitter output characteristics

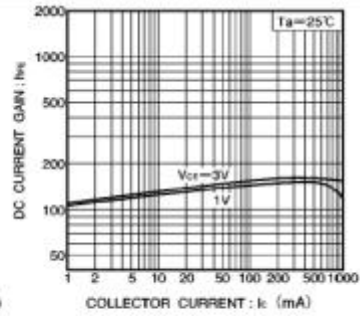


Fig.3 DC current gain vs. collector current (I)

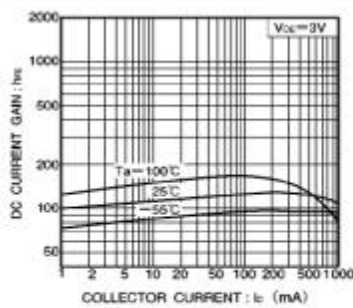


Fig.4 DC current gain vs. collector current (II)

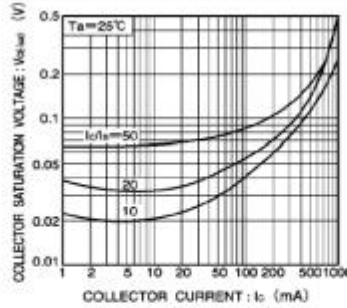


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

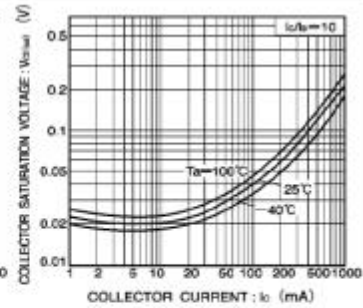


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

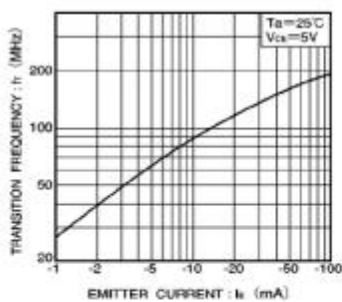


Fig.7 Gain bandwidth product vs. emitter current

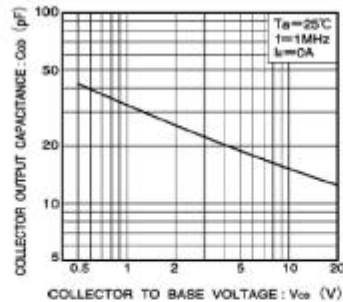


Fig.8 Collector output capacitance vs. collector-base voltage

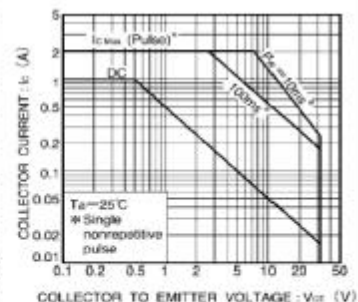


Fig.9 Safe operating area (2SD1664)

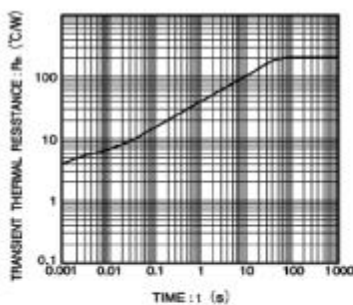
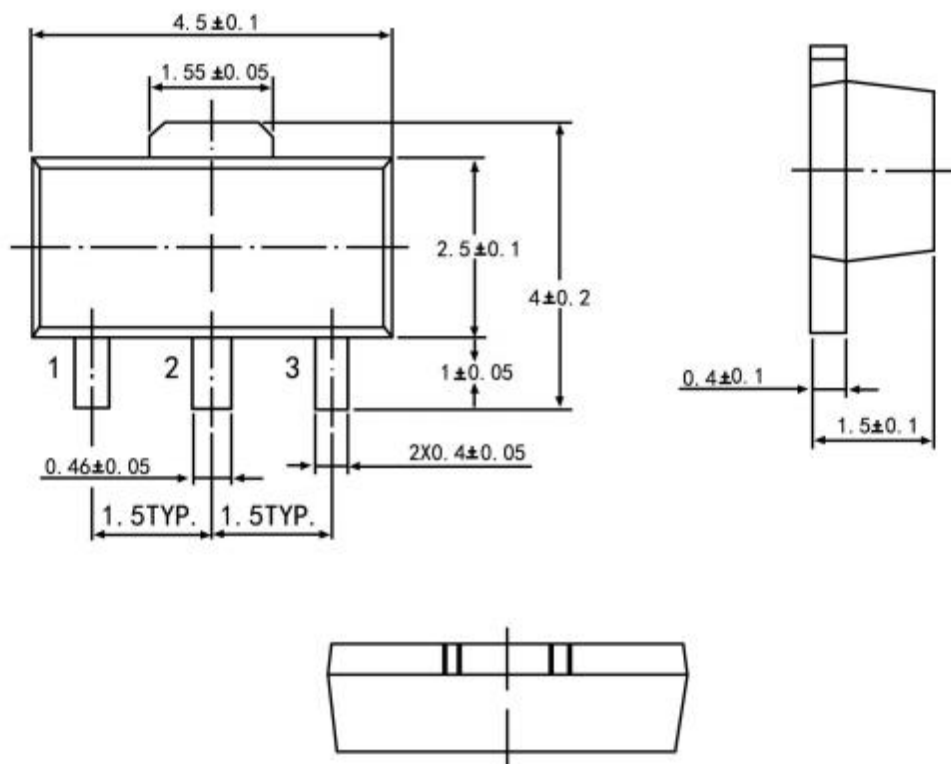


Fig.10 Transient thermal resistance (2SD1664)

SOT-89 PACKAGE OUTLINE



Symbol	Dimension in Millimeters	
	Min	Max
A	1.40	1.60
B	0.44	0.62
B1	0.35	0.54
C	0.35	0.44
D	4.40	4.60
D1	1.62	1.83
E	2.29	2.60
e	1.50 Typ	
H	3.94	4.25
H1	2.63	2.93
L	0.89	1.20
All Dimensions in mm		