Medium Power Transistor (-32V, -1A)

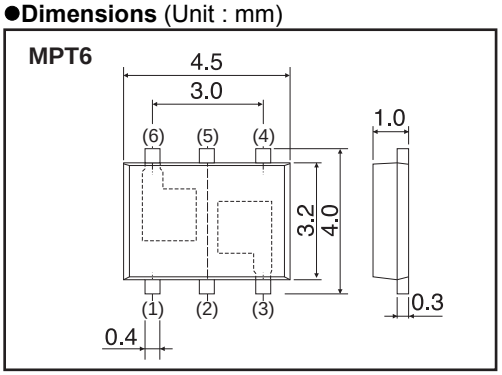
MP6Z1

●Applications
Low frequency amplifier

●Features
1) Low $V_{CE(sat)}$
$V_{CE(sat)}$ = -0.2V(Typ.)
(I_C / I_B = -500mA / -50mA)
2) Contains 2SD1664-die and 2SB1132-die in a package.

●Structure
Silicon epitaxial planar transistor

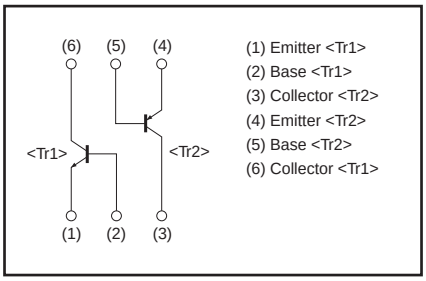
●Dimensions (Unit : mm)



●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit(pieces)	1000
MP6Z1		○

●Inner circuit



●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits		Unit
			Tr1	Tr2	
Collector-base voltage		V_{CBO}	40	–40	V
Collector-emitter voltage		V_{CEO}	32	–32	V
Emitter-base voltage		V_{EBO}	5	–5	V
Collector current	Continuous	I_C	1.0	–1.0	A
	Pulsed	I_{CP} *1	2.0	–2.0	A
Power dissipation		P_D *2	2.0		W / TOTAL
			1.4		W / ELEMENT
Junction temperature		T_j	150		°C
Range of storage temperature		Tstg	–55 to 150		°C

*1 Pw=10ms 1Pulse
*2 Mounted on a ceramic board

●Electrical characteristics (Ta=25◦C)

<Tr1>

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	32	–	–	V	I_C=1mA
Collector-base breakdown voltage	BV_{CBO}	40	–	–	V	I_C=50μA
Emitter-base breakdown voltage	BV_{EBO}	5	–	–	V	I_E=50μA
Collector cut-off current	I_{CBO}	–	–	500	nA	V_{CB}=20V
Emitter cut-off current	I_{EBO}	–	–	500	nA	V_{EB}=4V
Collector-emitter saturation voltage	$V_{CE(sat)}$*	–	–	400	mV	I_C=500mA, I_B=50mA
DC current gain	h_{FE}	120	–	390	–	V_{CE}=3V, I_C=100mA
Transition frequency	f_T *	–	150	–	MHz	V_{CE}=5V, I_E=–50mA, f=100MHz
Collector output capacitance	Cob	–	15	–	pF	V_{CB}=10V, I_E=0A, f=1MHz

* Pulsed

<Tr2>

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	–32	–	–	V	I_C= –1mA
Collector-base breakdown voltage	BV_{CBO}	–40	–	–	V	I_C= –50μA
Emitter-base breakdown voltage	BV_{EBO}	–5	–	–	V	I_E= –50μA
Collector cut-off current	I_{CBO}	–	–	–500	nA	V_{CB}= –20V
Emitter cut-off current	I_{EBO}	–	–	–500	nA	V_{EB}= –4V
Collector-emitter saturation voltage	$V_{CE(sat)}$*	–	–	–500	mV	I_C= –500A, I_B= –50mA
DC current gain	h_{FE}	120	–	390	–	V_{CE}= –3V, I_C= –100mA
Transition frequency	f_T *	–	150	–	MHz	V_{CE}= –5V, I_E=50mA, f=100MHz
Collector output capacitance	Cob	–	20	–	pF	V_{CB}= –10V, I_E=0A, f=1MHz

* Pulsed

●Electrical characteristics curves

<Tr1>

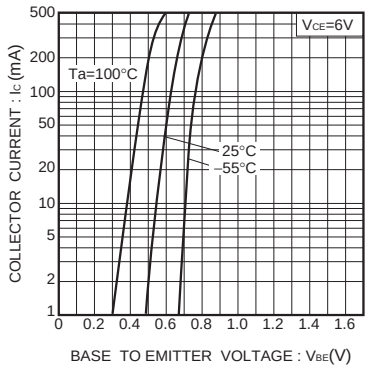


Fig.1 Grounded emitter propagation characteristics

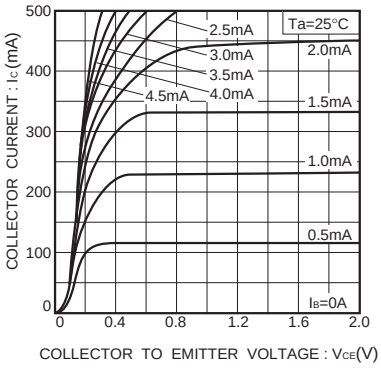


Fig.2 Grounded emitter output characteristics

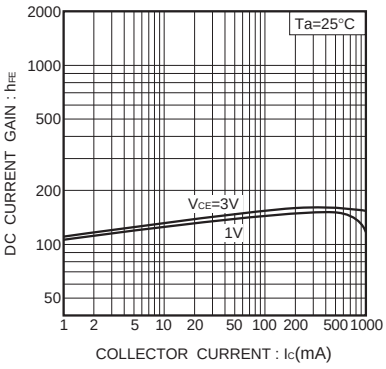


Fig.3 DC current gain vs. collector current (I)

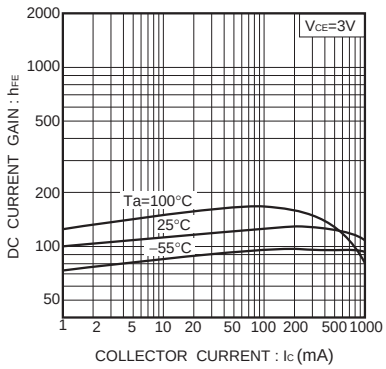


Fig.4 DC current gain vs. collector current (II)

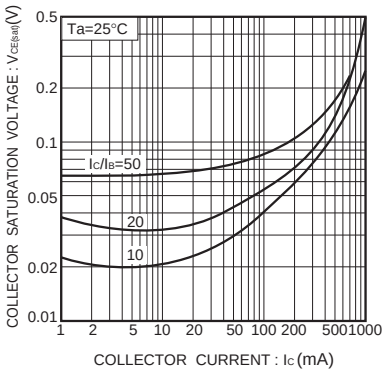


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

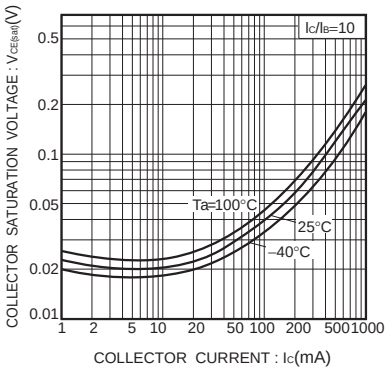


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

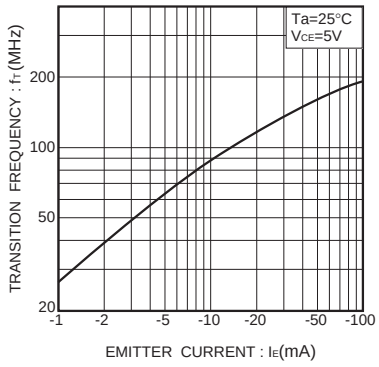


Fig.7 Gain bandwidth product vs. emitter current

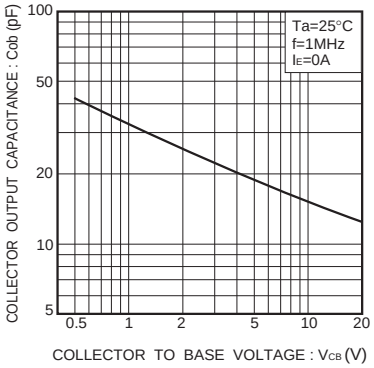


Fig.8 Collector output capacitance vs. collector-base voltage

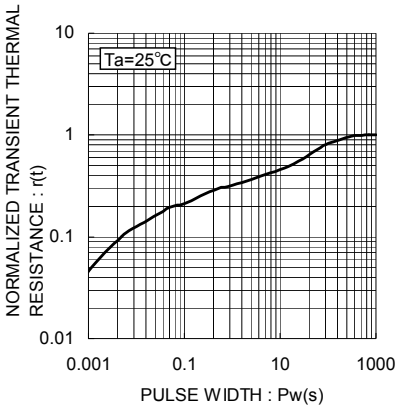


Fig.9 Normalized thermal resistance (Element)

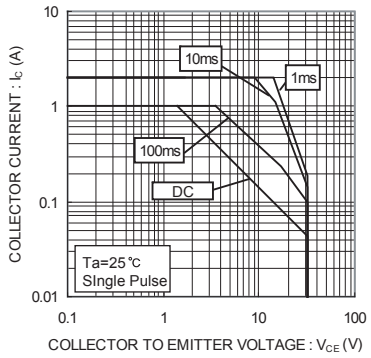


Fig.10 Safe operating area

●Electrical characteristics curves
<Tr2>

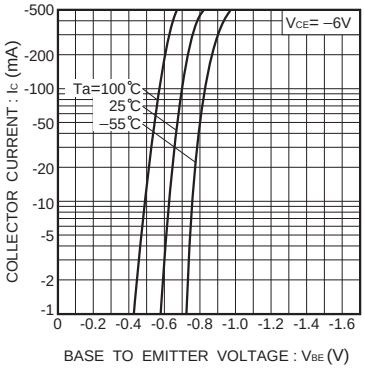


Fig.1 Grounded emitter propagation characteristics

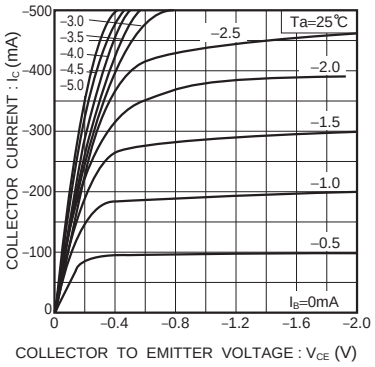


Fig.2 Grounded emitter output characteristics

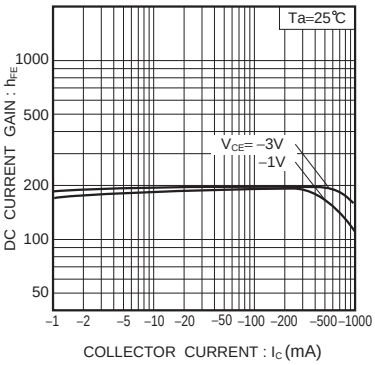


Fig.3 DC current gain vs. collector current(I)

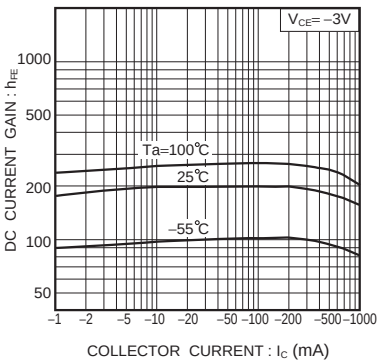


Fig.4 DC current gain vs. collector current(II)

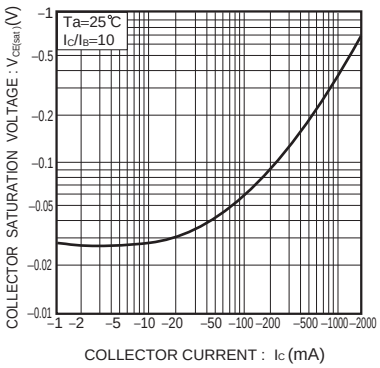


Fig.5 Collector-emitter saturation voltage vs. collector current

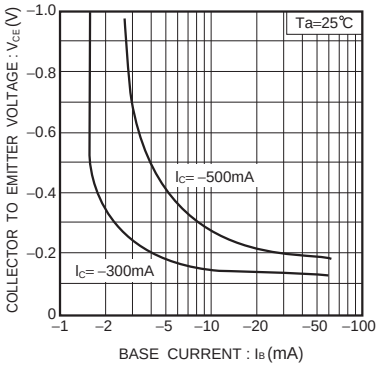


Fig.6 Collector-emitter saturation voltage vs. base current

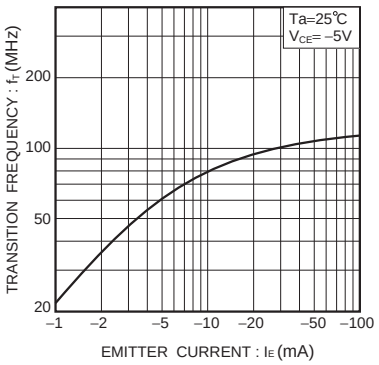


Fig.7 Gain bandwidth product vs. emitter current

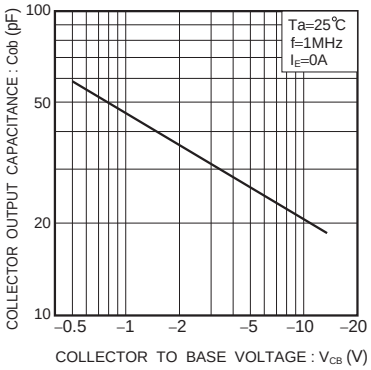


Fig.8 Collector output capacitance vs.collector-base voltage

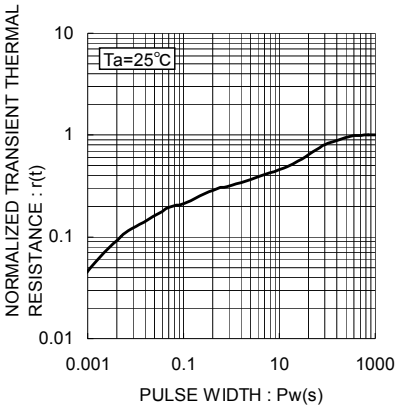


Fig.9 Normalized thermal resistance (Element)

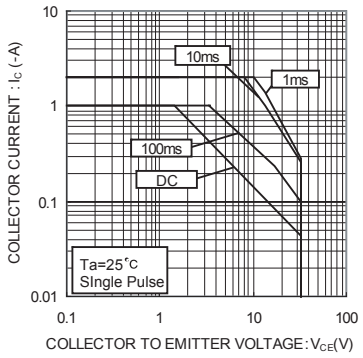


Fig.10 Safe operating area

Notes

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