

Medium Power Transistor (32V, 2A)

MP6Z2

●Applications

Low frequency amplifier

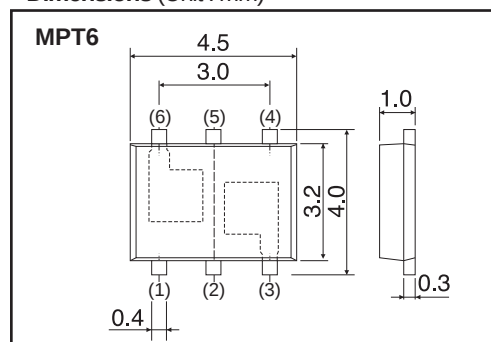
●Features

- 1) Low $V_{CE(sat)}$
 $V_{CE(sat)} = 0.5V(Typ.)$
 $(I_C / I_B = 2A / 0.2A)$
- 2) Contains 2SD1766-die and 2SB1188-die in a package.

●Structure

Silicon epitaxial planar transistor

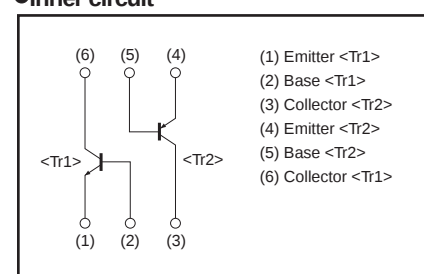
●Dimensions (Unit : mm)



●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit(pieces)	1000
MP6Z2		○

●Inner circuit



●Absolute maximum ratings ($T_a=25^{\circ}C$)

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	2.0	−2.0	A
	Pulsed	I _{CP} *1	2.5	−2.5	A
Power dissipation		P _D *2	2.0		W / TOTAL
			1.4		W / ELEMENT
Junction temperature		T _j	150		°C
Range of storage temperature		T _{stg}	−55 to 150		°C

*1 $P_w=10ms$ 1Pulse

*2 Mounted on a ceramic board

Transistors

●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}	–	–	1.0	μA	V _{CB} =20V
Emitter cut-off current	I _{EBO}	–	–	1.0	μA	V _{EB} =4V
Collector-emitter saturation voltage	V _{CE(sat)} *	–	500	800	mV	I _C =2A, I _B =200mA
DC current gain	h _{FE}	120	–	390	–	V _{CE} =3V, I _C =500mA
Transition frequency	f _T *	–	100	–	MHz	V _{CE} =5V, I _E =–50mA, f=100MHz
Collector output capacitance	C _{ob}	–	30	–	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}	–	–	–1.0	μA	V _{CB} = –20V
Emitter cut-off current	I _{EBO}	–	–	–1.0	μA	V _{EB} = –4V
Collector-emitter saturation voltage	V _{CE(sat)} *	–	–500	–800	mV	I _C = –2A, I _B = –200mA
DC current gain	h _{FE}	120	–	390	–	V _{CE} = –3V, I _C = –500mA
Transition frequency	f _T *	–	100	–	MHz	V _{CE} = –5V, I _E =50mA, f=100MHz
Collector output capacitance	C _{ob}	–	50	–	pF	V _{CB} = –10V, I _E =0A, f=1MHz

* Pulsed

Transistors

●Electrical characteristics curves

<Tr1>

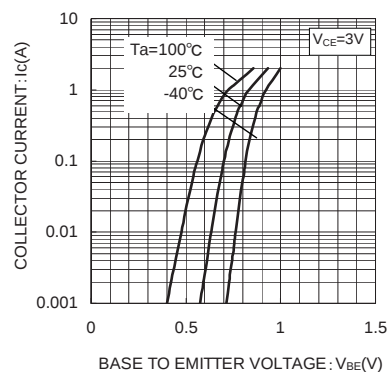


Fig.1 Grounded Emitter Propagation Characteristics

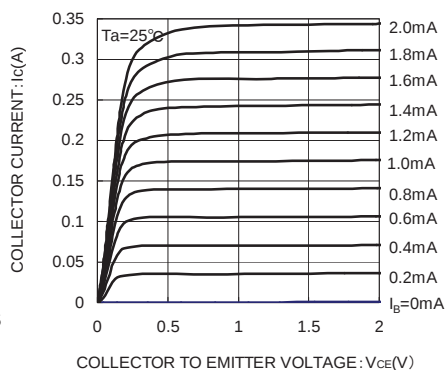


Fig.2 Ground Emitter Output Characteristics

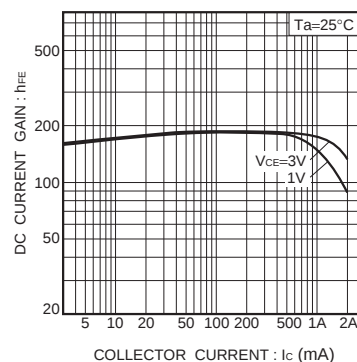


Fig.3 DC Current Gain vs. Collector Current (I)

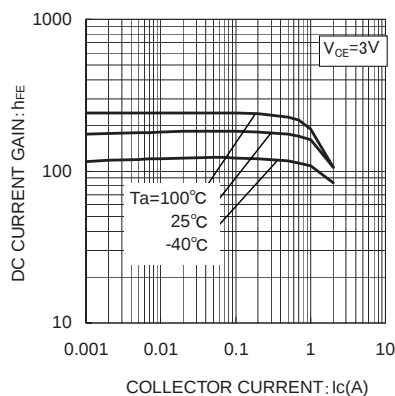


Fig.4 DC Current Gain vs. Collector Current (II)

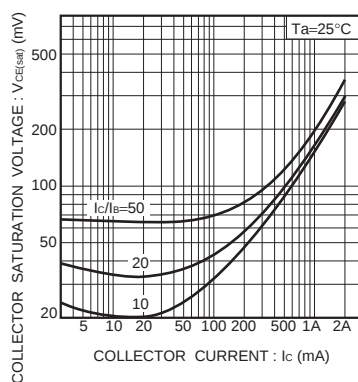


Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

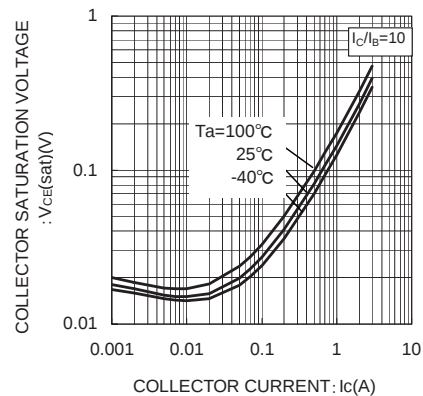


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

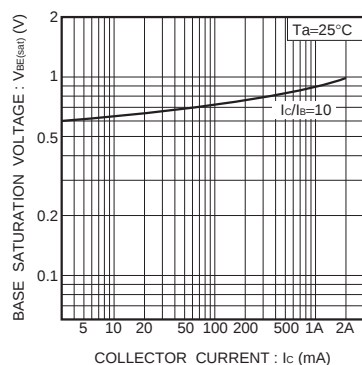


Fig.7 Collector-Emitter Saturation Voltage vs. Collector Current

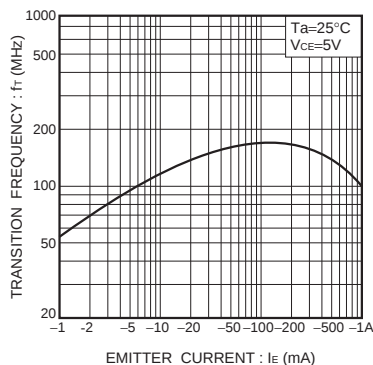


Fig.8 Transition Frequency vs. Emitter Current

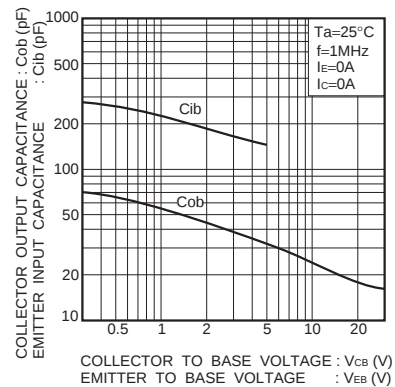


Fig.9 Collector Output Capacitance vs. Collector-Base Voltage Emitter Input Capacitance vs. Emitter-Base Voltage

Transistors

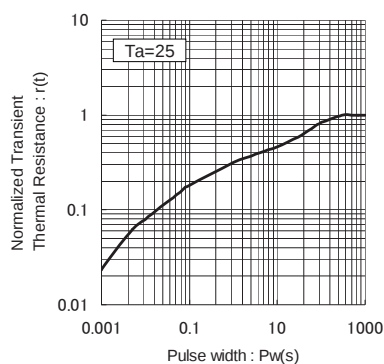
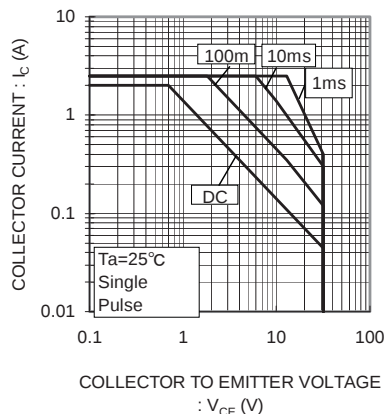
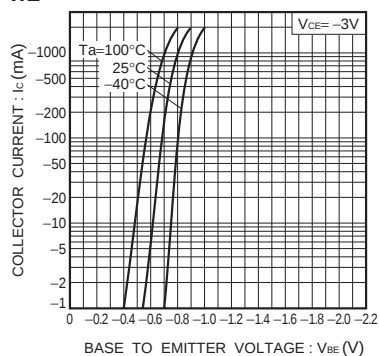
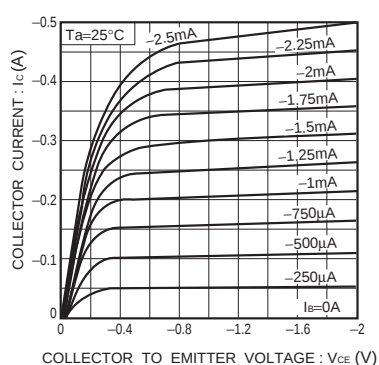
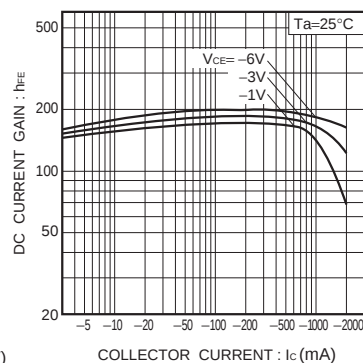
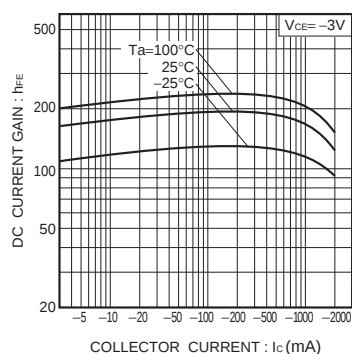
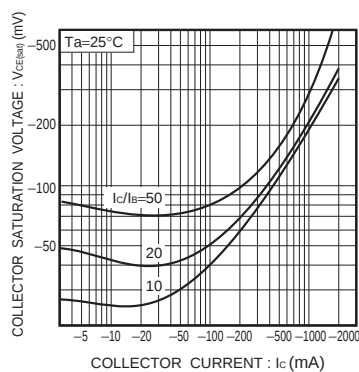
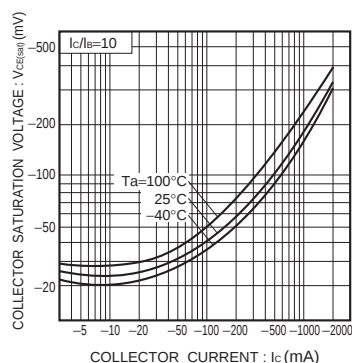
Fig.10 Normalized Thermal Resistance
(Element)

Fig.11 Safe Operating Area

●電気的特性曲線

<Tr2>

Fig.1 Grounded Emitter Propagation
CharacteristicsFig.2 Grounded Emitter Output
CharacteristicsFig.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)

Transistors

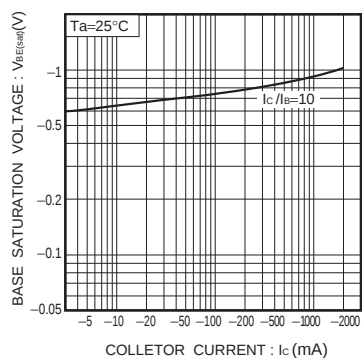


Fig.7 Base-Emitter Saturation Voltage vs. Collector current

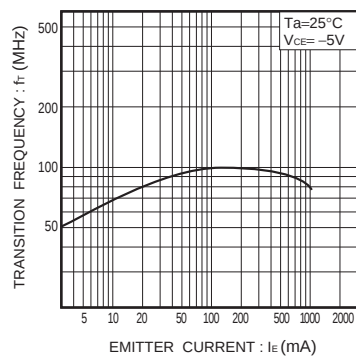


Fig.8 Gain Bandwidth Product vs. Emitter Current

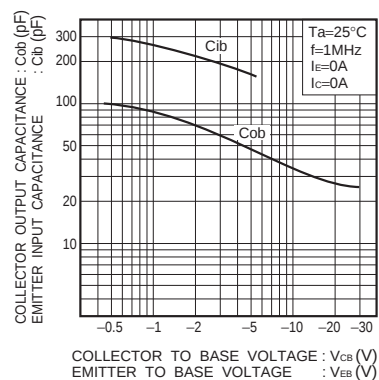
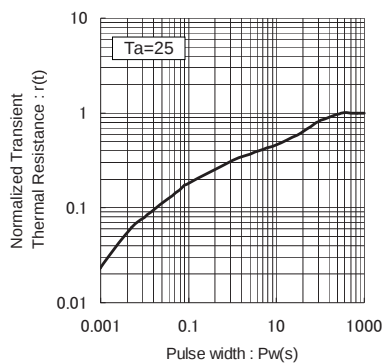
Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

Fig.10 Normalized Thermal Resistance (Element)

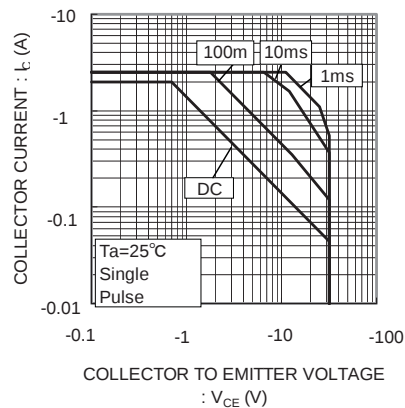


Fig.11 Safe Operating Area

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