Medium Power Transistor (32V, 1A)

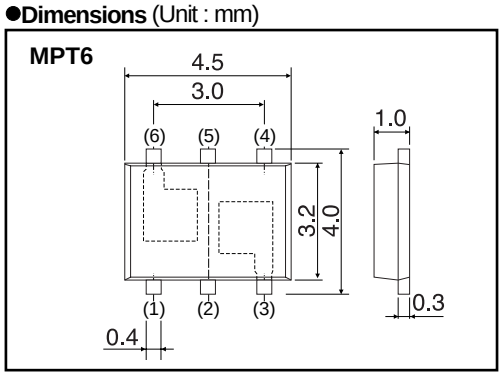
MP6X1

●**Applications**
Low frequency amplifier

●**Features**
1) Low $V_{CE(sat)}$, $V_{CE(sat)}$ = 0.15V(Typ.)
(I_C / I_B = 500mA / 50mA)
2) Contain two 2SD1664-dies in a package.

●**Structure**
NPN silicon epitaxial planar transistor

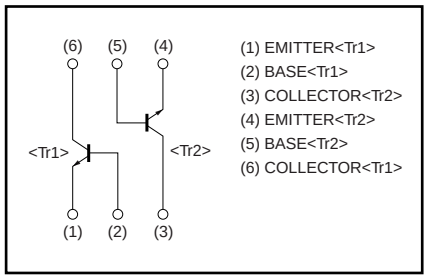
●**Dimensions** (Unit : mm)



●**Packaging specifications**

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	1000
MP6X1		○

●**Inner circuit**



●**Absolute maximum ratings** (Ta=25°C)
<Tr1, Tr2>

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	40	V
Collector-emitter voltage		V_{CEO}	32	V
Emitter-base voltage		V_{EBO}	5	V
Collector current	Continuous	I_C	1	A
	Pulsed	I_{CP} *1	2	A
Power dissipation		P_D *2	2.0	W / TOTAL
			1.4	W / ELEMENT
Junction temperature		Tj	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, 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 cutoff current	I_{CBO}	–	–	500	nA	V_{CB}=20V
Emitter cutoff current	I_{EBO}	–	–	500	nA	V_{EB}=4V
Collector-emitter saturation voltage	$V_{CE(sat)}$*	–	–	400	mV	I_C/I_B=500mA/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

●Electrical characteristics curves

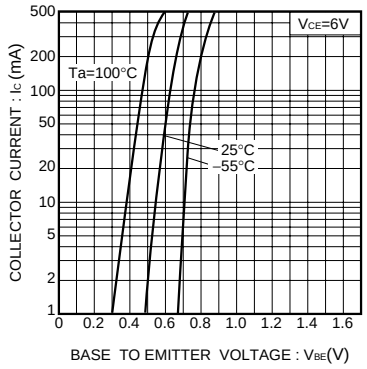


Fig.1 Grounded emitter propagation characteristics

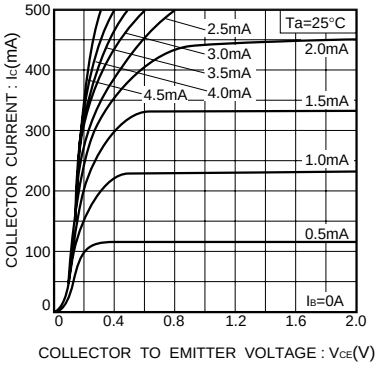


Fig.2 Grounded emitter output characteristics

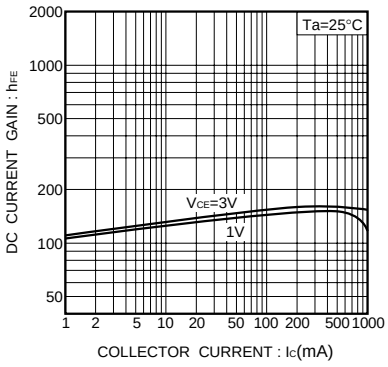


Fig.3 DC current gain vs. collector current (I)

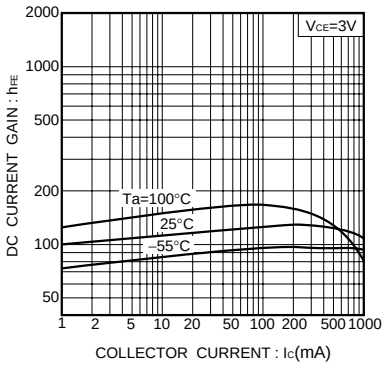


Fig.4 DC current gain vs. collector current (II)

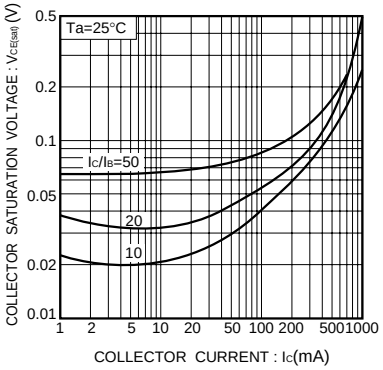


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

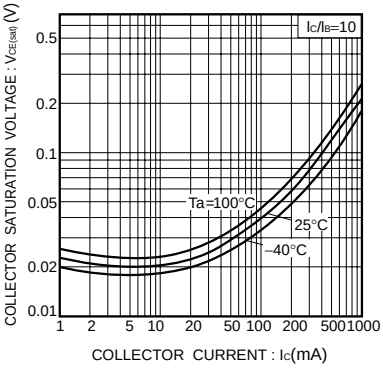


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

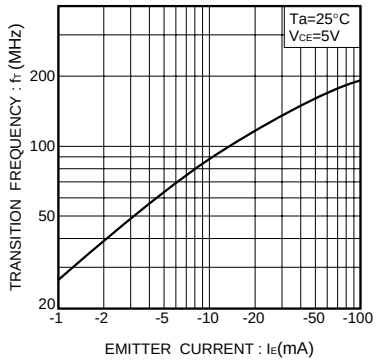


Fig.7 Gain bandwidth product vs. emitter current

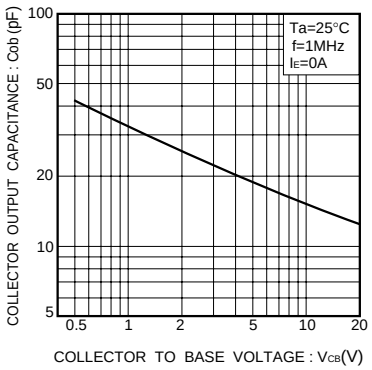


Fig.8 Collector output capacitance vs. collector-base voltage

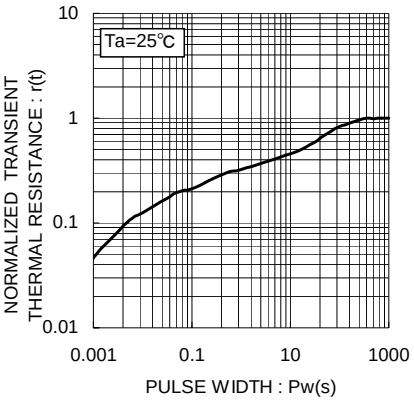


Fig.9 Normalized thermal resistance (Element)

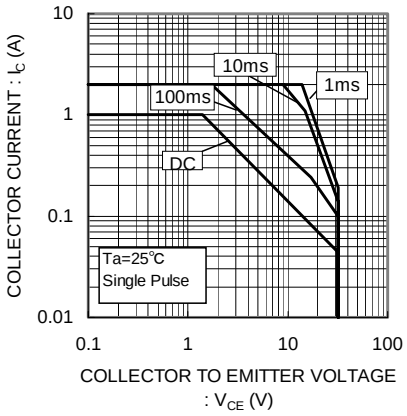


Fig.10 Safe operating area (Tr1&Tr2)

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