

# Medium Power Transistor (32V, 2A)

## MP6X2

### ●Application

Low frequency amplifier

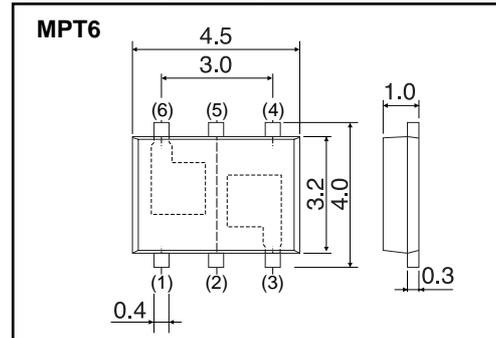
### ●Features

- 1) Low  $V_{CE(sat)}$ ,  $V_{CE(sat)} = 0.5V(Typ.)$   
( $I_C/I_B = 2A/0.2A$ )
- 2) Contain two 2SD1766-dies in a package.

### ●Structure

NPN silicon epitaxial planar transistor

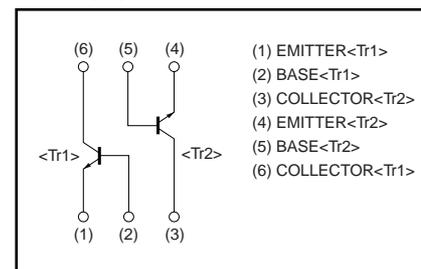
### ●Dimensions (Unit : mm)



### ●Packaging specifications

Type	Package	Taping
	Code	TR
	Basic ordering unit (pieces)	1000
MP6X2		○

### ●Inner circuit



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

<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	$I_C$	2.0	A
	Pulsed	$I_{CP} *1$	2.5	A
Power dissipation	$P_D *2$	2.0	W / TOTAL	
		1.4	W / ELEMENT	
Junction temperature	$T_j$	150	$^\circ C$	
Range of storage temperature	$T_{stg}$	-55 to +150	$^\circ C$	

\*1  $P_w=10ms$  1Pulse

\*2 Mounted on a ceramic board

Transistors

●Electrical characteristics (Ta=25°C)

<Tr1, Tr2>

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	32	–	–	V	I <sub>c</sub> =1mA
Collector-base breakdown voltage	BV <sub>CB0</sub>	40	–	–	V	I <sub>c</sub> =50μA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	5	–	–	V	I <sub>E</sub> =50μA
Collector cutoff current	I <sub>cBO</sub>	–	–	1.0	μA	V <sub>CB</sub> =20V
Emitter cutoff current	I <sub>EBO</sub>	–	–	1.0	μA	V <sub>EB</sub> =4V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub> *	–	500	800	mV	I <sub>c</sub> /I <sub>B</sub> =2.0A/200mA
DC current gain	h <sub>FE</sub>	120	–	390	–	V <sub>CE</sub> =3V, I <sub>c</sub> =500mA
Transition frequency	f <sub>T</sub> *	–	100	–	MHz	V <sub>CE</sub> =5V, I <sub>E</sub> =–500mA, f=100MHz
Collector output capacitance	C <sub>ob</sub>	–	30	–	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz

\* Pulsed

●Electrical characteristics curves

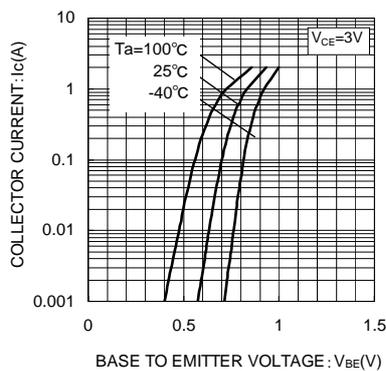


Fig.1 Grounded Emitter Propagation Characteristics

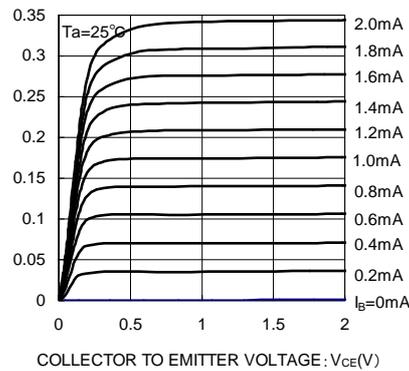


Fig.2 Ground Emitter Output Characteristics

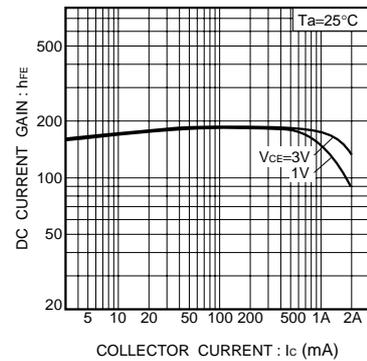


Fig.3 DC current gain vs. collector current ( I )

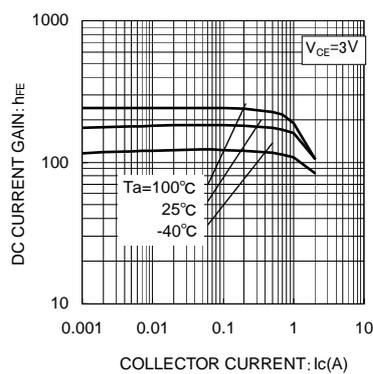


Fig.4 DC Current Gain vs. Collector Current ( I )

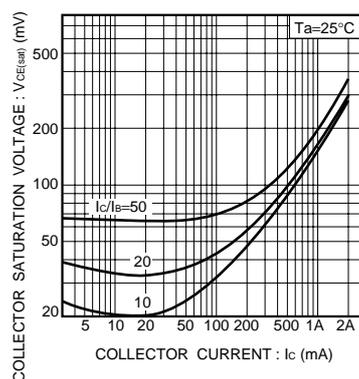


Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

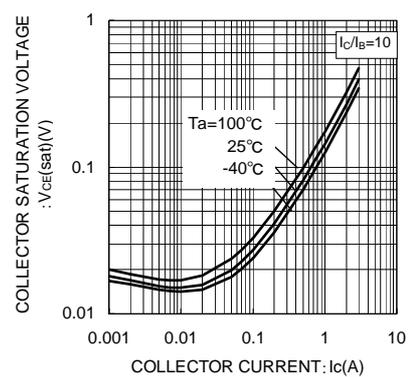


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current ( II )

Transistors

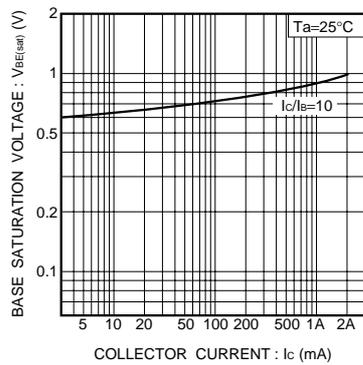


Fig.7 Collector-emitter saturation voltage vs. collector current

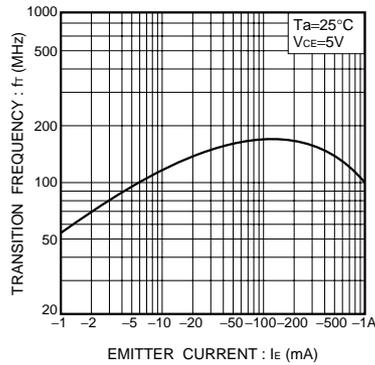


Fig.8 Transition frequency vs. emitter current

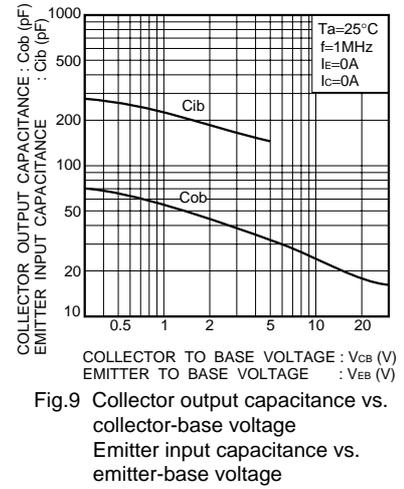


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

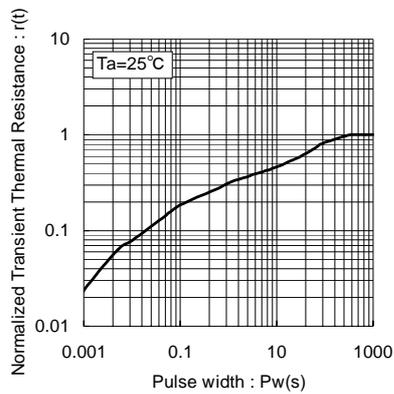


Fig.10 Normalized thermal resistance (Element)

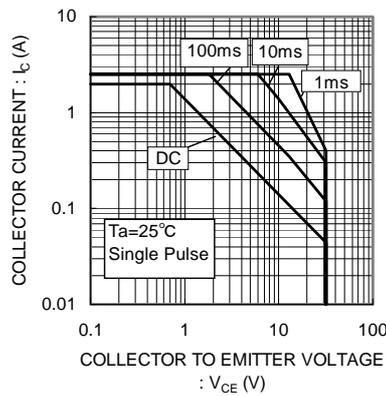


Fig.11 Safe operating area

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