2SD23210RA Datasheet

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DiGi Electronics Part Number	2SD23210RA-DG
Manufacturer	Panasonic Electronic Components
Manufacturer Product Number	2SD23210RA
Description	TRANS NPN 20V 5A NS-B1
Detailed Description	Bipolar (BJT) Transistor NPN 20 V 5 A 150MHz 400 m W Through Hole NS-B1

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
2SD23210RA	Panasonic Electronic Components
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
NPN	5 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
20 V	1V @ 100mA, 3A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
1µA	340 @ 500mA, 2V
Power - Max:	Frequency - Transition:
400 mW	150MHz
Operating Temperature:	Mounting Type:
150°C (TJ)	Through Hole
Package / Case:	Supplier Device Package:
3-SIP	NS-B1
Base Product Number:	
2SD2321	

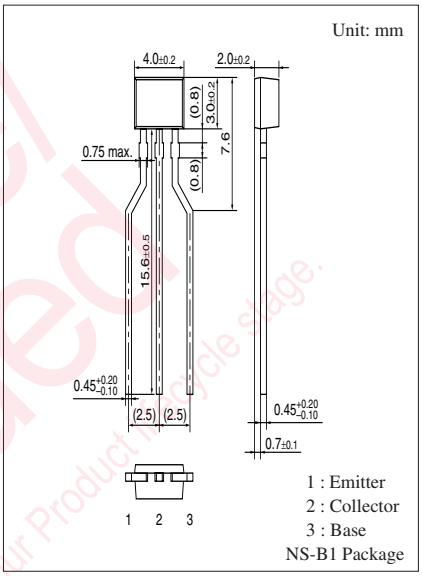
Environmental & Export classification

Moisture Sensitivity Level (MSL):	ECCN:
1 (Unlimited)	EAR99
HTSUS:	
8541.21.0075	

2SD2321

Silicon NPN epitaxial planar type

For low-frequency power amplification



■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Satisfactory operation performances at high efficiency with the low-voltage power supply

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	40	V
Collector-emitter voltage (Base open)	V_{CEO}	20	V
Emitter-base voltage (Collector open)	V_{EBO}	7	V
Collector current	I_C	5	A
Peak collector current	I_{CP}	8	A
Collector power dissipation	P_C	400	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

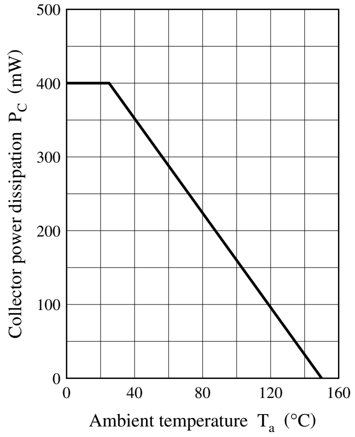
■ Electrical Characteristics $T_a = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	I_C = 1 mA, I_B = 0	20			V
Emitter-base voltage (Collector open)	V_{EBO}	I_E = 10 µA, I_C = 0	7			V
Collector-base cutoff current (Emitter open)	I_{CBO}	V_{CB} = 10 V, I_E = 0			0.1	µA
Collector-emitter cutoff current (Base open)	I_{CEO}	V_{CB} = 10 V, I_B = 0			1	µA
Emitter-base cutoff current (Collector open)	I_{EBO}	V_{EB} = 7 V, I_C = 0			0.1	µA
Forward current transfer ratio	h_{FE1} *	V_{CE} = 2 V, I_C = 0.5 A	230		600	—
	h_{FE2}	V_{CE} = 2 V, I_C = 2 A	150			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 3 A, I_B = 0.1 A		0.28	1.00	V
Transition frequency	f_T	V_{CB} = 6 V, I_E = −50 mA, f = 200 MHz		150		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	V_{CB} = 20 V, I_E = 0, f = 1 MHz		26	50	pF

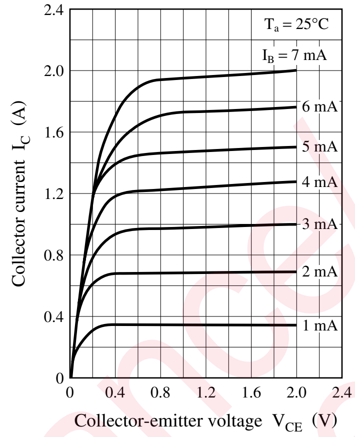
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *: Rank classification

Rank	Q	R
h_{FE1}	230 to 380	340 to 600

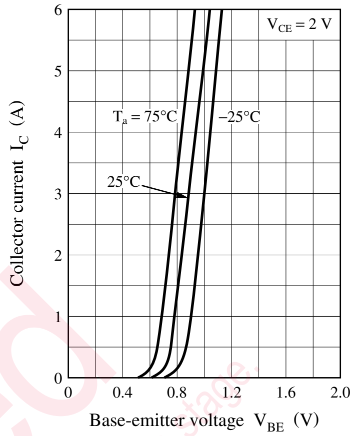
P_C — T_a



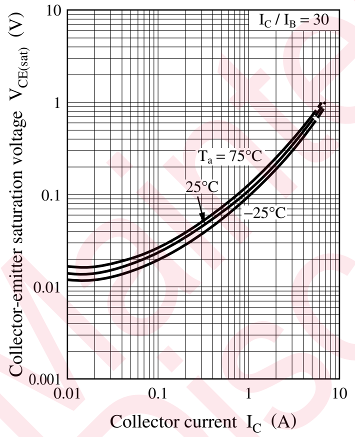
I_C — V_{CE}



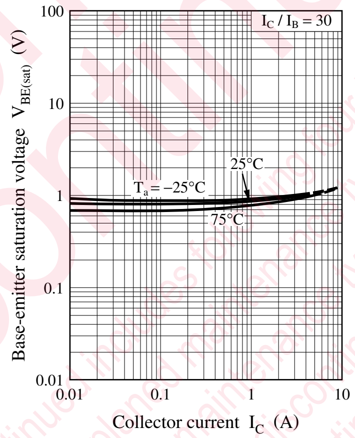
I_C — V_{BE}



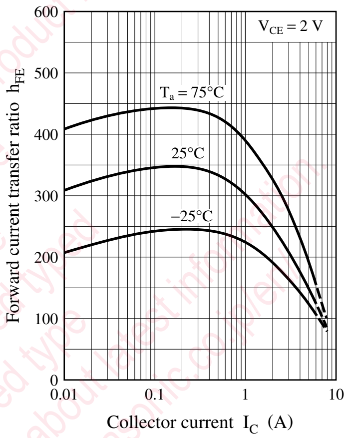
$V_{CE(sat)}$ — I_C



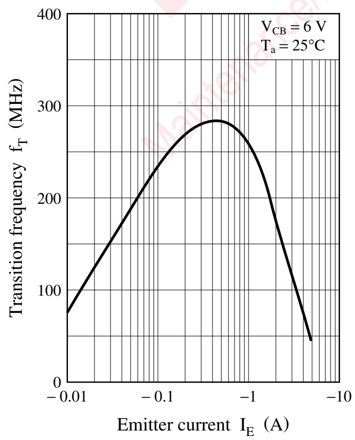
$V_{BE(sat)}$ — I_C



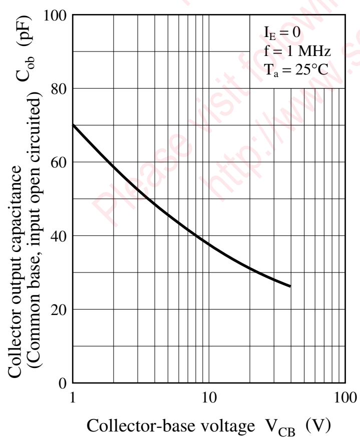
h_{FE} — I_C



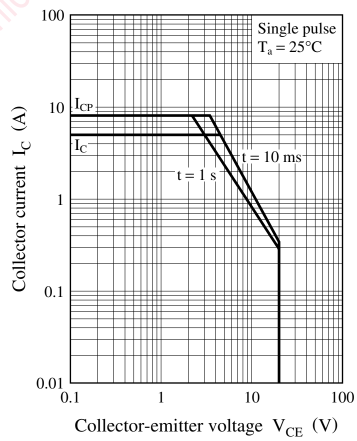
f_T — I_E



C_{ob} — V_{CB}



Safe operation area



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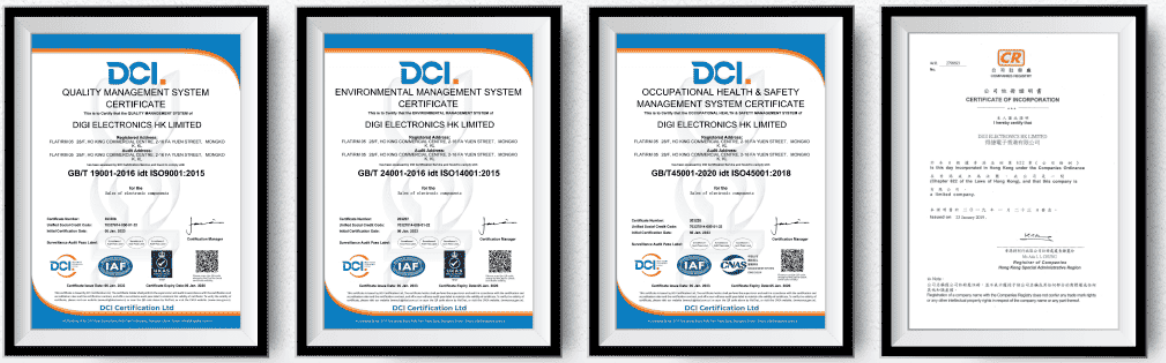

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