

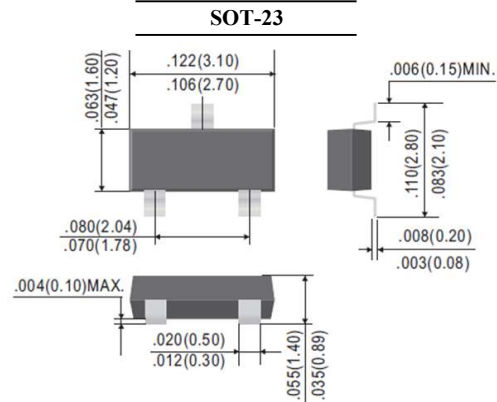
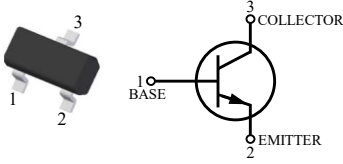


2SD1781 QH / RH

NPN TRANSISTORS

FEATURES

· Suffix "H" indicates Halogen-free parts, ex. 2SD1781QH



Dimensions in inches and (millimeter)

Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CB0}	40	V
Collector Emitter Voltage	V_{CE0}	32	V
Emitter Base Voltage	V_{EB0}	5	V
Collector Current	I_C	0.8	A
Peak Pulse Current	I_{CM}	1.5	A
Power Dissipation	P_D	200	mW
Thermal Resistance from Junction to Ambient (Note 1)	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_{STG}	- 55 to + 150	$^\circ\text{C}$

Note :

1. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.



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Electrical Characteristics ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain	$V_{CE}=3\text{V}, I_C=100\text{mA}$	h_{FE}	120	-	270	-
			180	-	390	-
Collector Base Cutoff Current	$V_{CB}=20\text{V}$	I_{CBO}	-		0.5	μA
Emitter Base Cutoff Current	$V_{EB}=4\text{V}$	I_{EBO}	-		0.5	μA
Collector Base Breakdown Voltage	$I_C=50\mu\text{A}$	$V_{(BR)CBO}$	40		-	V
Collector Emitter Breakdown Voltage	$I_C=1\text{mA}$	$V_{(BR)CEO}$	32		-	V
Emitter Base Breakdown Voltage	$I_E=50\mu\text{A}$	$V_{(BR)EBO}$	5		-	V
Collector Emitter Saturation Voltage	$I_C=500\text{mA}, I_B=50\text{mA}$	$V_{CE(sat)}$	-		0.4	V
Transition Frequency	$I_E=-50\text{mA}, V_{CE}=5\text{V}, f=100\text{MHz}$	f_T	-	150	-	MHz
Collector Capacitance	$V_{CB}=10\text{V}, I_E=0\text{A}, f=1\text{MHz}$	C_C	-	5	-	pF



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RATINGS AND CHARACTERISTIC CURVES

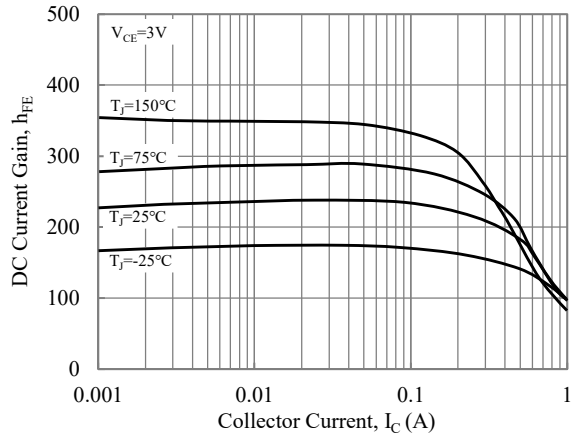


Fig. 1-Current Gain vs Collector Current

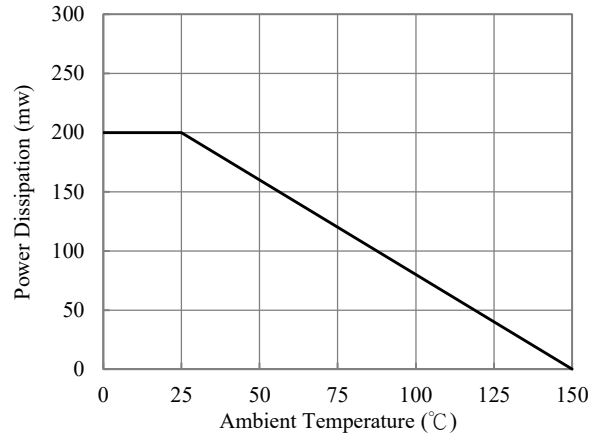


Fig. 2-Power Derating Curve

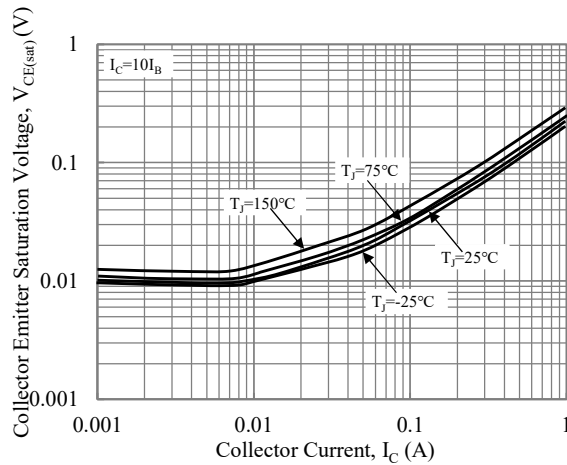


Fig. 3-Collector Emitter Saturation Voltage vs. Collector Current

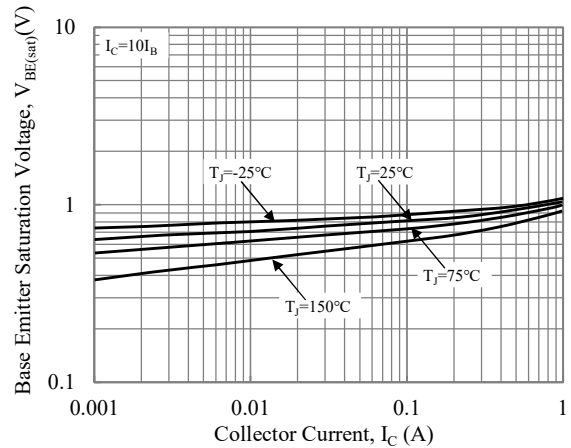


Fig. 4-Base Emitter Saturation Voltage vs. Collector Current

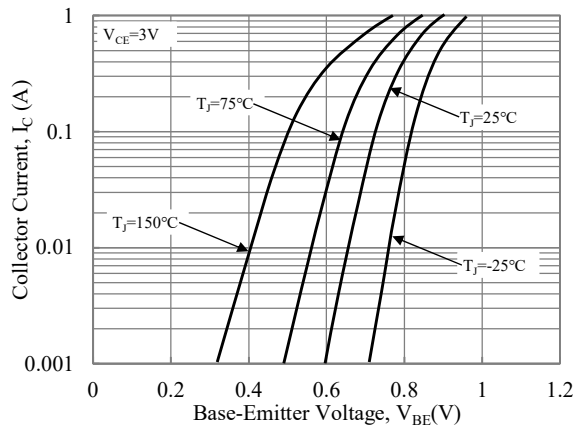


Fig. 5-Base Emitter Voltage vs. Collector Current

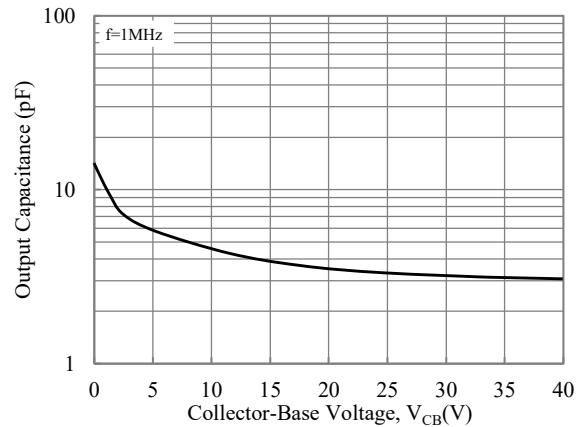


Fig. 6-Output Capacitance



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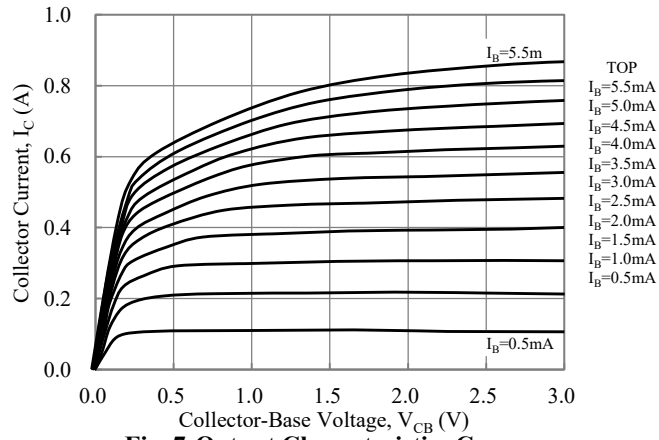


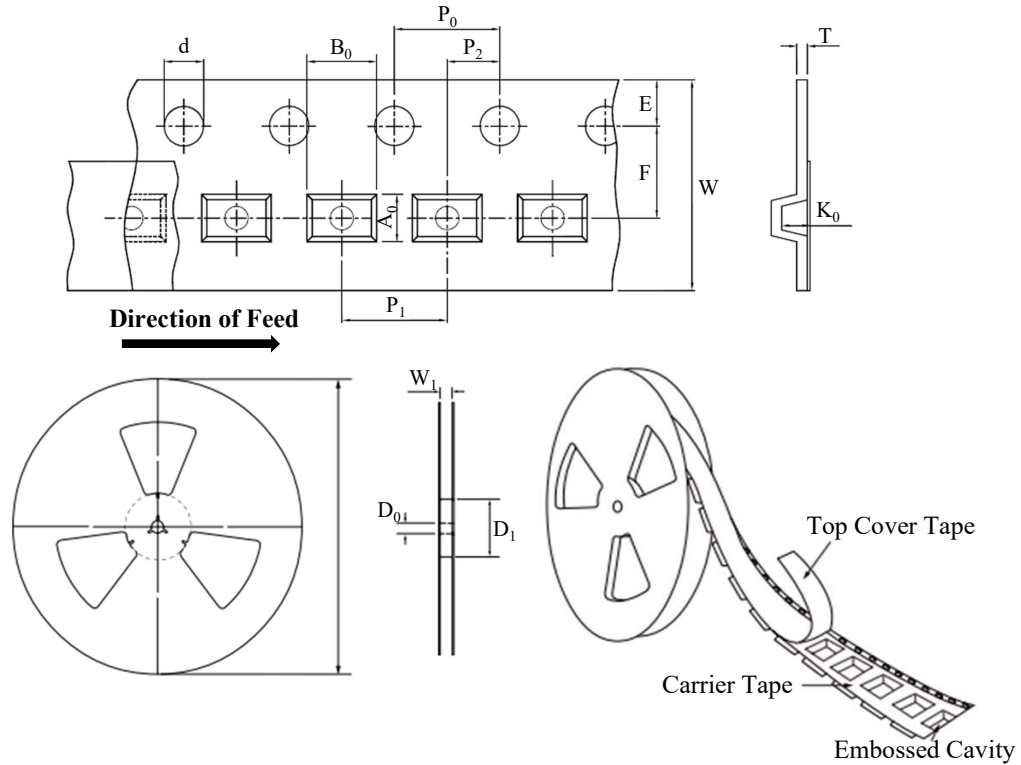
Fig. 7-Output Characteristics Curve



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TAPE & REEL SPECIFICATION



Item	Symbol	SOT-23
Carrier width	A ₀	3.30 ± 0.10
Carrier length	B ₀	3.00 ± 0.10
Carrier depth	K ₀	1.70 ± 0.10
Sprocket hole	d	1.50 ± 0.10
Reel outside diameter	D	178.00 ± 2.00
Feed hole width	D ₀	13.00 ± 0.50
Reel inner diameter	D ₁	MIN. 50.00
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	3.50 ± 0.10
Sprocket hole pitch	P ₀	4.00 ± 0.10
Punch hole pitch	P ₁	4.00 ± 0.10
Embossment center	P ₂	2.00 ± 0.10
Overall tape thickness	T	0.20 ± 0.05
Tape width	W	8.00 ± 0.20
Reel width	W ₁	MAX. 14.50

ORDER INFORMATION

Package	Reel Size	Quantity
SOT-23	7"	3,000

MARKING CODE

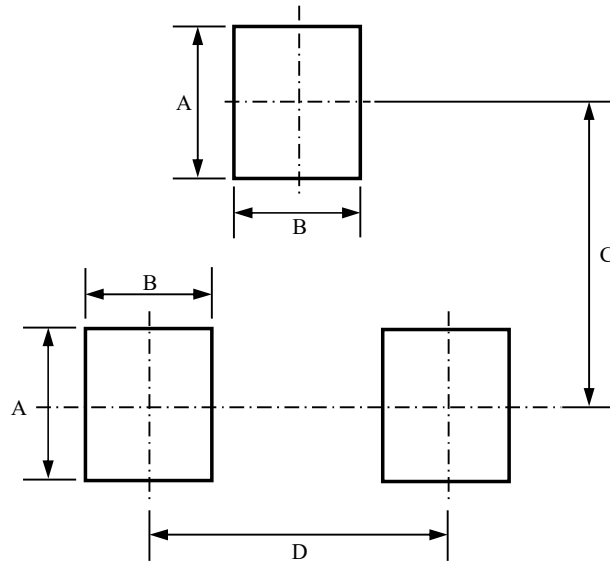
Part Number	Marking Code
2SD1781QH	Y1
2SD1781RH	Y2



2SD1781 QH / RH

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SUGGESTED SOLDER PAD LAYOUT



Unit :mm

PACKAGE	A	B	C	D
SOT-23	1.00	0.80	2.00	1.90