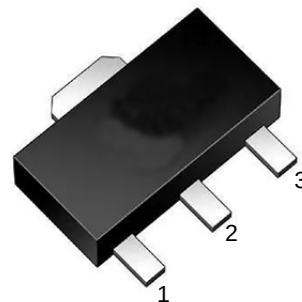


SOT-89-3L Plastic-Encapsulate Transistors

2SD965 TRANSISTOR (NPN)

• Features

- Low Collector-Emitter Saturation Voltage
- Large Collector Power Dissipation and Current
- Mini Power Type Package



1. BASE
2. COLLECTOR
3. EMITTER

SOT-89-3L

• MAXIMUM RATINGS $(T_C=25^{\circ}\text{C})$

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current	I_C	5	A
Collector Power Dissipation	P_C	750	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	167	$^{\circ}\text{C}/\text{W}$
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^{\circ}\text{C}$

• ELECTRICAL CHARACTERISTICS $(T_a=25^{\circ}\text{C})$

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	7			V
Collector cut-off current	I_{CBO}	$V_{CB}=10\text{V}, I_E=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=7\text{V}, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=2\text{V}, I_C=1\text{mA}$		200		
	$h_{FE(2)}$	$V_{CE}=2\text{V}, I_C=500\text{mA}$	230		800	
	$h_{FE(3)}$	$V_{CE}=2\text{V}, I_C=2\text{A}$	150			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=3\text{A}, I_B=0.1\text{A}$			1	V
Transition frequency	f_T	$V_{CE}=6\text{V}, I_C=50\text{mA}, f=200\text{MHz}$		150		MHz
Collector output capacitance	C_{ob}	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$			50	pF

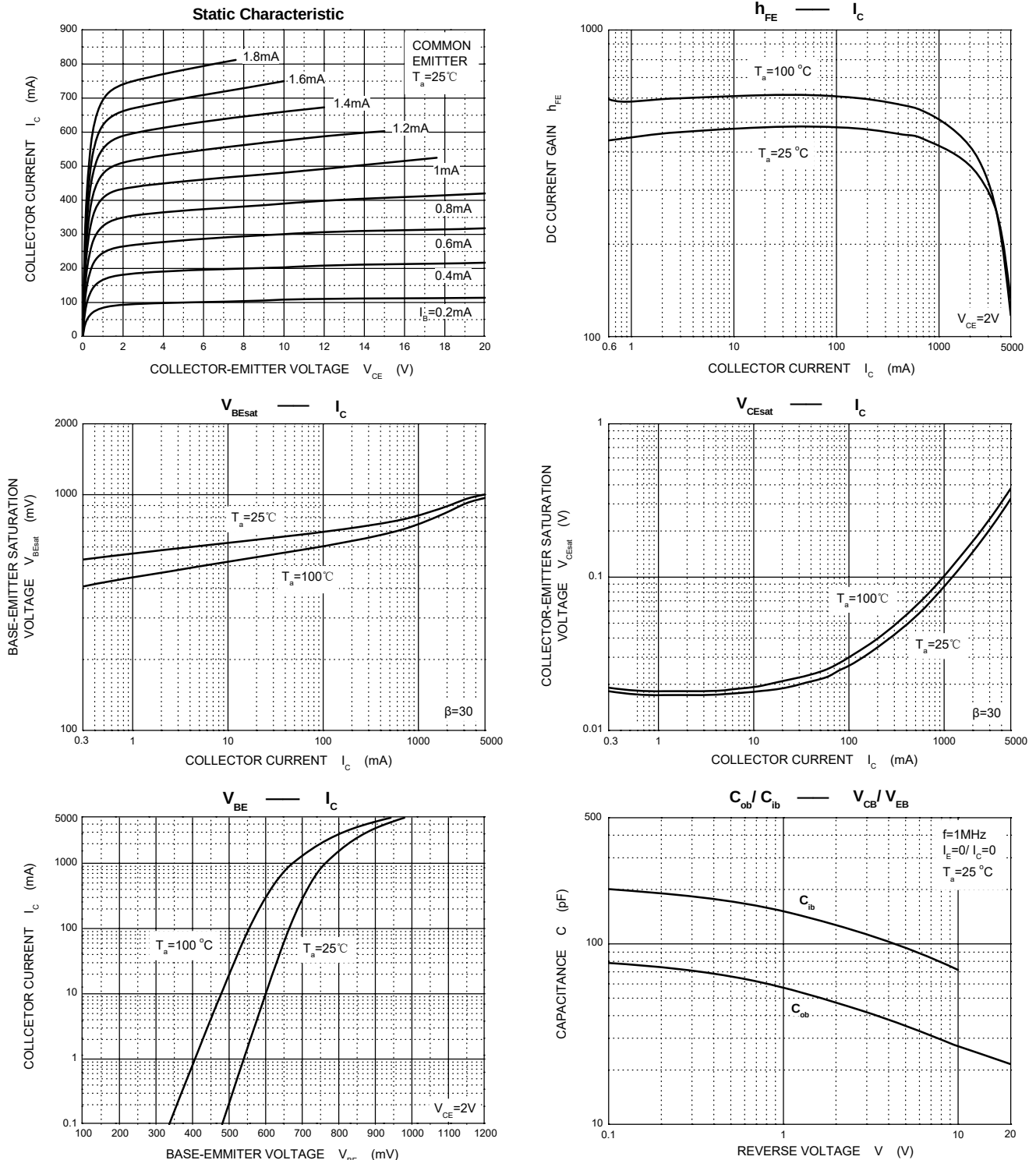
• CLASSIFICATION OF $h_{FE(1)}$

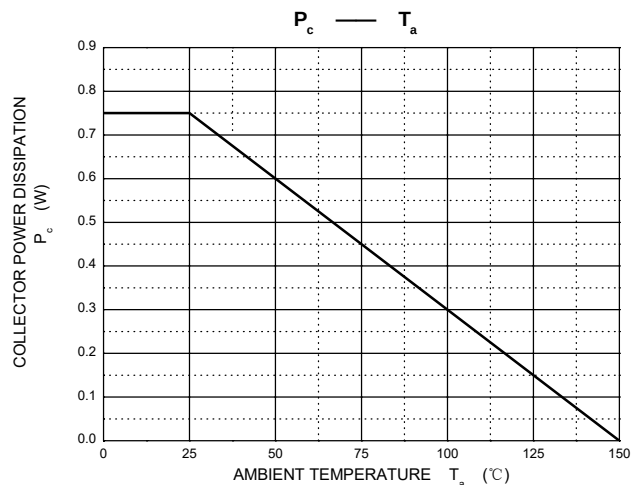
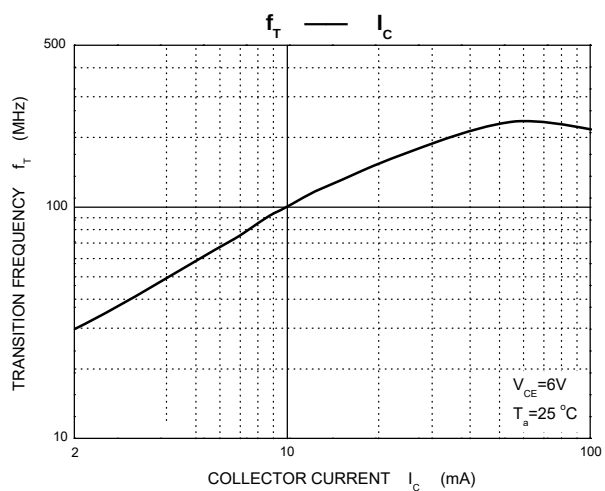
RANK	Q	R	S
RANGE	230 - 380	340 - 600	560 - 800

• Ordering Information:

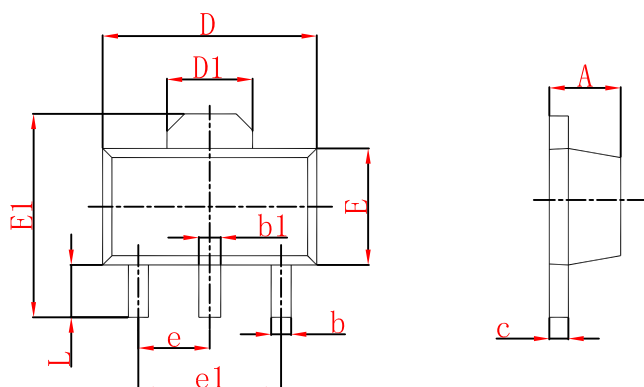
Part NO.	2SD965
Marking	D965
Packing Information	REEL TAPE
Basic ordering unit (pcs)	1000

• Typical Characteristics

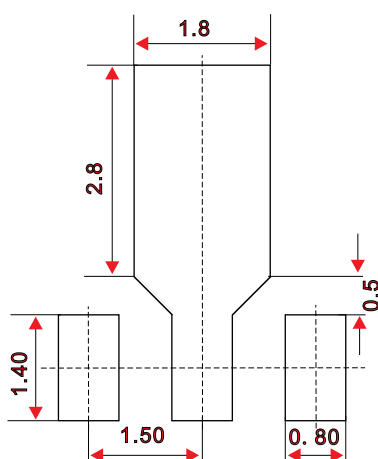




SOT-89-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047



Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05 mm.
 3. The pad layout is for reference purposes only.