

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead free

FEATURES

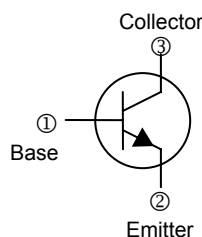
- High transition frequency
- Small $r_{bb}' \cdot C_c$ and high gain
- Small NF

PACKAGE INFORMATION

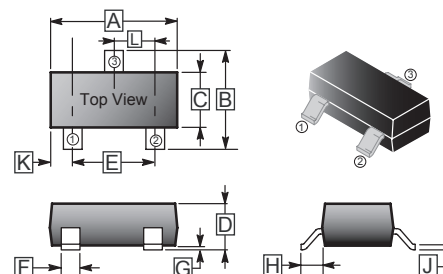
Weight: 0.0078g (Approximately)

MARKING

AD



SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.80	3.00	G	0.10 REF.	
B	2.25	2.55	H	0.55 REF.	
C	1.20	1.40	J	0.08	0.15
D	0.90	1.15	K	0.5 REF.	
E	1.80	2.00	L	0.95 TYP.	
F	0.30	0.50			

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	V_{CBO}	20	V
Collector to Emitter Voltage	V_{CEO}	11	V
Emitter to Base Voltage	V_{EBO}	3	V
Collector Current - Continuous	I_C	50	mA
Collector Power Dissipation	P_c	100	mW
Junction, Storage Temperature	T_J, T_{STG}	+150, -55 ~ +150	$^\circ\text{C}$

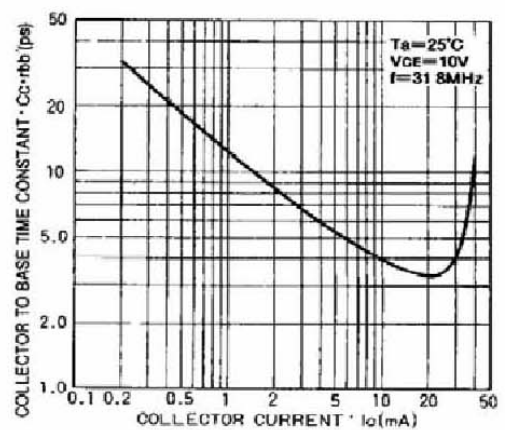
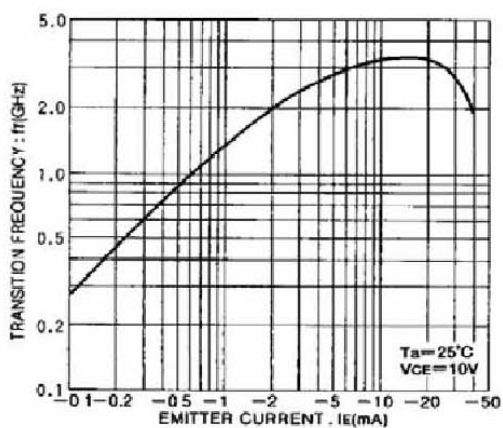
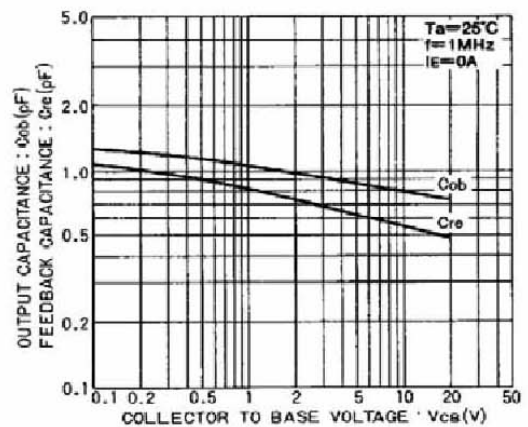
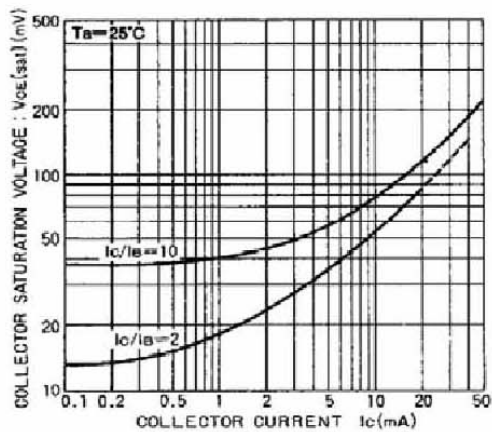
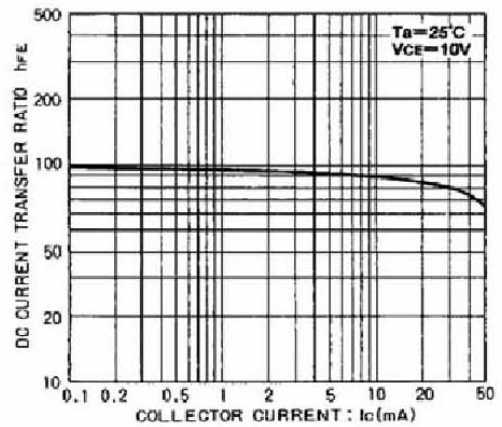
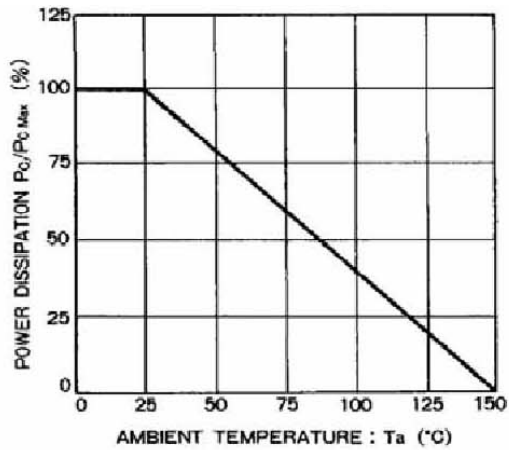
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	20	-	-	V	$I_C=10\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	11	-	-	V	$I_C=1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	3	-	-	V	$I_E=10\mu\text{A}, I_C=0$
Collector Cut-Off Current	I_{CBO}	-	-	0.5	μA	$V_{CB}=10\text{V}, I_E=0$
Emitter Cut-Off Current	I_{EBO}	-	-	0.5	μA	$V_{EB}=2\text{V}, I_C=0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	500	mV	$I_C=-10\text{mA}, I_B=5\text{mA}$
DC Current Gain	h_{FE}	56	-	180		$V_{CE}=10\text{V}, I_C=5\text{mA}$
Transition Frequency	f_T	1.4	-	-	GHz	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=500\text{MHz}$
Output Capacitance	C_{ob}	-	-	1.5	pF	$V_{CB}=10\text{V}, I_E=0\text{A}, f=1\text{MHz}$
Collector-Base Time Constant	$r_{bb}' \cdot C_c$	-	-	12	pS	$I_C=10\text{mA}, V_{CB}=10\text{V}, f=31.8\text{MHz}$
Noise Figure	F	-	3.5	-	dB	$V_{CE}=6\text{V}, I_C=2\text{mA}, f=500\text{MHz}, R_s=50\Omega$

CLASSIFICATION OF h_{FE}

Rank	N	P
Range	56 - 120	82 - 180

CHARACTERISTIC CURVES



CHARACTERISTIC CURVES (cont'd)

