

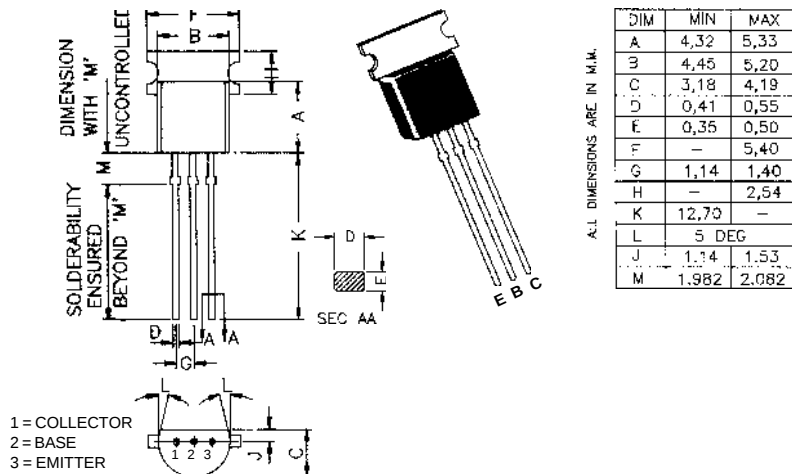
TO-237 Plastic Package

CTN635, CTN637, CTN639
CTN636, CTN638, CTN640

CTN635, 637, 639 NPN SILICON PLANAREPITAXIAL TRANSISTORS

CTN636, 638, 640 PNP SILICON PLANAREPITAXIAL TRANSISTORS

Complementary Transistors in Plastic Package for Driver Stage of Audio Amplifier.



ABSOLUTE MAXIMUM RATINGS

Ratings	Symbol	CTN635	CTN637	CTN639	Units
		CTN636	CTN638	CTN640	
Collector-Base Voltage	V_{CBO}	45	60	100	V
Collector-Emitter Voltage	V_{CEO}	45	60	80	V
Emitter-Base Voltage	V_{EBO}	—	5	—	V
Collector Current – Continuous	I_C	—	1	—	A
Peak	I_{CM}	—	1.5	—	A
Base Current – Continuous	I_B	—	100	—	mA
Peak	I_{BM}	—	200	—	mA
Power Dissipation @ $T_a=25^\circ\text{C}$	P_D	—	750	—	mW
Derate above 25°C		—	6	—	mW/ $^\circ\text{C}$
Power Dissipation @ $T_c=25^\circ\text{C}$	P_D	—	2.5	—	W
Derate above 25°C		—	20	—	mW/ $^\circ\text{C}$
Operating And Storage Junction Temperature Range	T_j, T_{stg}	–55 to +150			$^\circ\text{C}$

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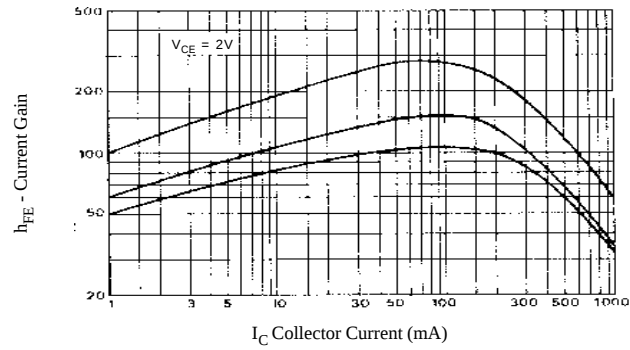
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
Collector-Emitter Voltage	635, 636	BV_{CEO}	45	-	-	V
$I_C=10\text{mA}$, $I_B=0$	637, 638		60	-	-	V
	639, 640		80	-	-	V
Collector-Base Voltage	635, 636	BV_{CBO}	45	-	-	V
$I_C=100\mu\text{A}$, $I_E=0$	637, 638		60	-	-	V
	639, 640		100	-	-	V
Emitter-Base Voltage						
$I_E=10\mu\text{A}$, $I_C=0$		BV_{EBO}	5	-	-	V
Collector Cutoff Current						
$V_{CB}=30\text{V}$, $I_E=0$		I_{CBO}	-	-	100	nA
$V_{CB}=30\text{V}$, $I_E=0$, $Ta=125^{\circ}\text{C}$				-	10	μA
Base Emitter On Voltage						
$I_C=500\text{mA}$, $V_{CE}=2\text{V}$		$V_{BE(on)}^*$	-	-	1.0	V
Collector-Emitter (Sat) Voltage						
$I_C=500\text{mA}$, $I_B=50\text{mA}$		$V_{CE(sat)}^*$	-	-	0.5	V
D.C. Current Gain						
$I_C=5\text{mA}$, $V_{CE}=2\text{V}$	635, 636	h_{FE}	25	-	-	
$I_C=150\text{mA}$, $V_{CE}=2\text{V}^*$	637, 638		40	-	160	
	639, 640		40	-	160	
$I_C=500\text{mA}$, $V_{CE}=2\text{V}^*$			25	-	-	
DYNAMIC CHARACTERISTICS						
Input Capacitance						
$V_{BE}=0.5\text{V}$, $I_C=0$, $f=1\text{MHz}$	NPN PNP	C_{ib}	-	50 110	-	pF pF
Input Capacitance						
$V_{CB}=10\text{V}$, $I_C=0$, $f=1\text{MHz}$	NPN PNP	C_{ob}	-	7 9	-	pF pF
Transition Frequency						
$I_C=10\text{mA}$, $V_{CE}=5\text{V}$, $f=35\text{MHz}$	NPN PNP	f_T	-	130 50	-	MHz MHz

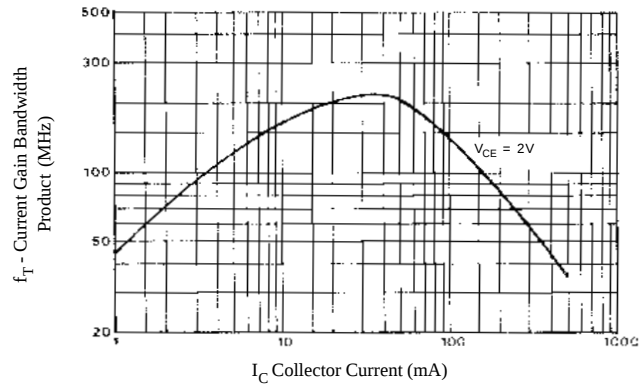
* Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

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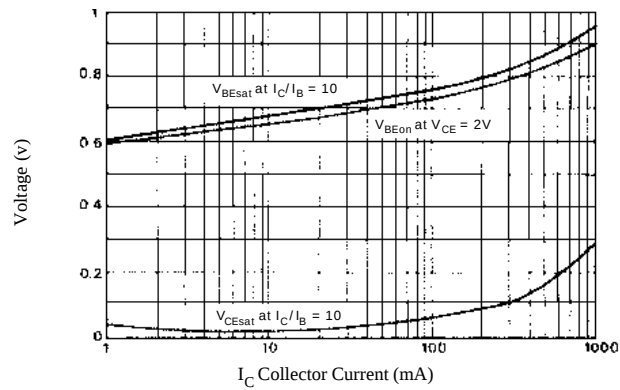
DC Current Gain



Current Gain Bandwidth Product



Saturation and On Voltages



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