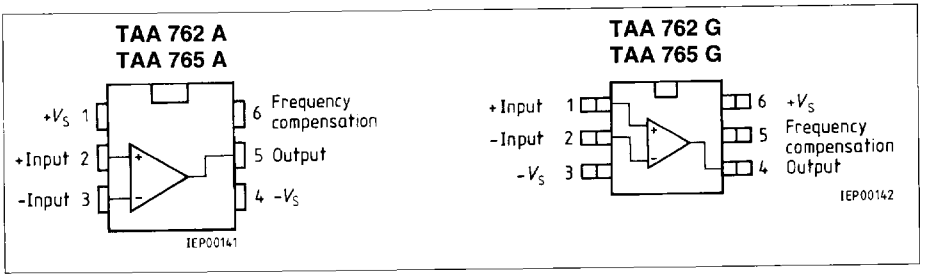
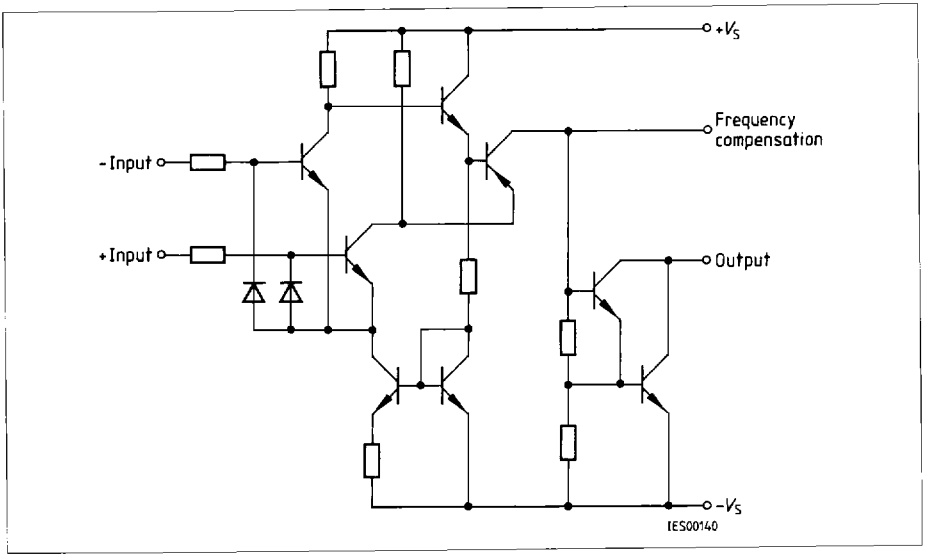
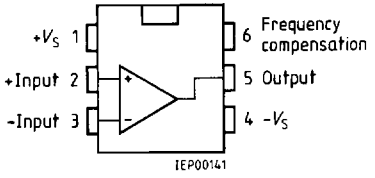


Pin Configurations
(top view)

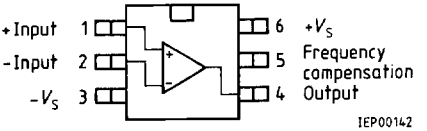


Circuit Diagram

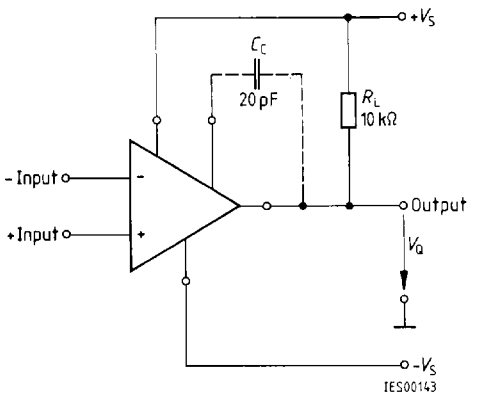
TAE 1453 A
TAF 1453 A



TAE 1453 G
TAF 1453 G



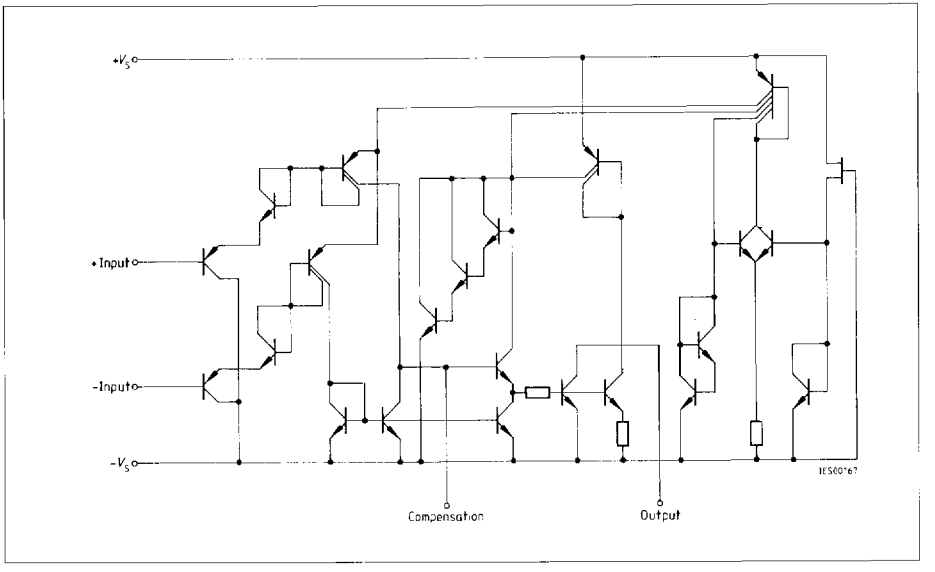
Pin Configuration
(top view)



C_C = output frequency compensation (if required);

R_L = load resistance (collector resistance)

Connection Diagram



Circuit Diagram

Absolute Maximum Ratings (TAE 1453)

Parameter	Symbol	Limit Values	Unit
Supply voltage	V_S	± 18	V
Output current	I_Q	100	mA
Differential input voltage	V_{ID}	± V_S	V
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	– 55 to 150	°C
Thermal resistance system - air TAE 1453 A	$R_{th\,SA}$	135	K/W
TAE 1453 G	$R_{th\,SA}$	200	K/W

Operating Range (TAE 1453)

Supply voltage	V_S	± 2 to ± 18 (± 1.5 V with slightly increased offset voltage)	V
Ambient temperature	T_A	– 25 to 85	°C

Characteristics (TAE 1453)

V_S = ± 5 V to ± 15 V; R_L = 10 kΩ, unless otherwise specified

Parameter	Symbol	Limit Values T_A = 25 °C			Limit Values T_A = – 25 to 85 °C		Unit
		min.	typ.	max.	min.	max.	
Open-loop current consumption	I_S		0.25	0.4		0.45	mA
Input offset voltage, R_G = 50 Ω	V_{IO}	– 5.5		5.5	– 7	7	mV
Input offset current	I_{IO}	– 15		15	– 100	100	nA
Input current	I_I		40	150		200	nA
Control range							
R_L = 2 kΩ, V_S = ± 15 V	$V_{Q\,pp}$	14.9		– 14.7	14.9	– 14.7	V
R_L = 620 Ω, V_S = ± 15 V	$V_{Q\,pp}$	14.9		– 14.5	14.9	– 14.4	V
R_L = 2 kΩ, V_S = ± 15 V, f = 100 kHz	$V_{Q\,pp}$	10		– 10			V
Input impedance, f = 1 kHz	Z_I		200				kΩ
Open-loop voltage gain	G_{V0}	78	85		78		dB
Output reverse current	I_{QR}			10		20	µA
Common-mode input voltage range	V_{IC}	– V_S – 0.2		V_S – 1.8	– V_S	V_S – 2.0	V

Characteristics (TAE 1453) (cont'd)
$V_S = \pm 5$ V to ± 15 V; $R_L = 10$ kΩ, unless otherwise specified

Parameter	Symbol	Limit Values $T_A = 25$ °C			Limit Values $T_A = -25$ to 85 °C		Unit
		min.	typ.	max.	min.	max.	
Common-mode rejection	k_{CMR}	75	80		75		dB
Supply voltage rejection $G_V = 100$	k_{SVR}		25	100		120	µV/V
Temperature coefficient of I_{IO} $R_G = 50\ \Omega$	α_{IIO}		0.1				nA/K
Temperature coefficient of V_{IO} $R_G = 50\ \Omega$	α_{VIO}		6				µV/K
Slew rate for non-inverting operation	SR		20				V/µs
Slew rate for inverting operation	SR		30				V/µs

Characteristics (TAE 1453)
$V_S = \pm 2.5$ V, $R_L = 10$ kΩ

Input offset voltage, $R_G = 50\ \Omega$	V_{IO}	– 6		6	– 7.5	7.5	mV
Input offset current	I_{IO}	– 75		75	– 100	100	nA
Input current	I_I		40	150		200	nA
Open-loop voltage gain	G_{V0}	70			70		dB

Absolute Maximum Ratings (TAF 1453)

Parameter	Symbol	Limit Values	Unit
Supply voltage	V_S	± 18	V
Output current	I_Q	100	mA
Differential input voltage	V_{ID}	$\pm V_S$	V
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	– 55 to 125	°C
Thermal resistance system - air TAF 1453 A	$R_{th\,SA}$	135	K/W
TAF 1453 G	$R_{th\,SA}$	200	K/W

Operating Range (TAF 1453)

Supply voltage	V_S	± 2 to ± 18 (± 1.5 V with slightly increased offset voltage)	V
Ambient temperature	T_A	– 55 to 125	°C

Characteristics (TAF 1453)

V_S = ± 5 V to ± 15 V; R_L = 10 kΩ, unless otherwise specified

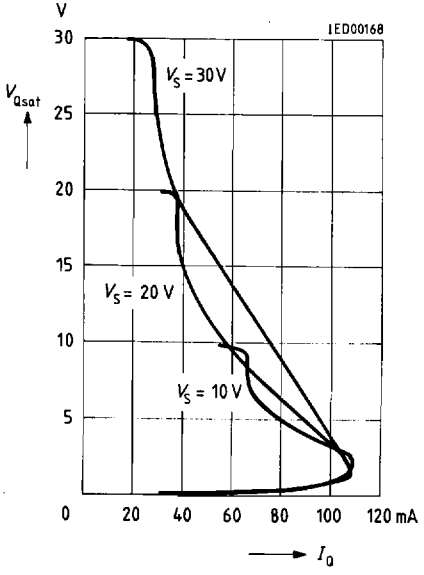
Parameter	Symbol	Limit Values T_A = 25 °C			Limit Values T_A = – 55 to 125 °C		Unit
		min.	typ.	max.	min.	max.	
Open-loop current consumption (Output in H state)	I_S		0.25	0.35		0.45	mA
Input offset voltage, R_G = 50 Ω	V_{IO}	– 4		4	– 6	6	mV
Input offset voltage	I_{IO}	– 10		10	– 75	75	nA
Input current	I_I		40	100		150	nA
Control range							
R_L = 2 kΩ, V_S = ± 15 V	$V_{Q\,pp}$	14.9		– 14.7	14.9	– 14.7	V
R_L = 620 Ω, V_S = ± 15 V	$V_{Q\,pp}$	14.9		– 14.5	14.9	– 14.4	V
R_L = 2 kΩ, V_S = ± 15 V, f = 100 kHz	$V_{Q\,pp}$	10		– 10			V
Input impedance, f = 1 kHz	Z_I		200				kΩ
Open-loop voltage gain	G_{V0}	80	85		75		dB
Output reverse current	I_{QR}			1		5	µA
Common-mode input voltage range	V_{IC}	– V_S – 0.3		V_S – 1.5	– V_S	V_S – 1.8	V
Common-mode rejection	k_{CMR}	80	85		75		dB
Supply voltage rejection G_V = 100	k_{SVR}		25	100		100	µV/V
Temperature coefficient of I_{IO} R_G = 50 Ω	α_{IIO}		0.1	0.8			nA/K
Temperature coefficient of V_{IO} R_G = 50 Ω	α_{VIO}		6	25			µV/K
Slew rate for non-inverting operation	SR		20				V/µs
Slew rate for inverting operation	SR		30				V/µs

Characteristics (TAF 1453)
$V_S = \pm 2.5\,V$; $R_L = 10\,k\Omega$

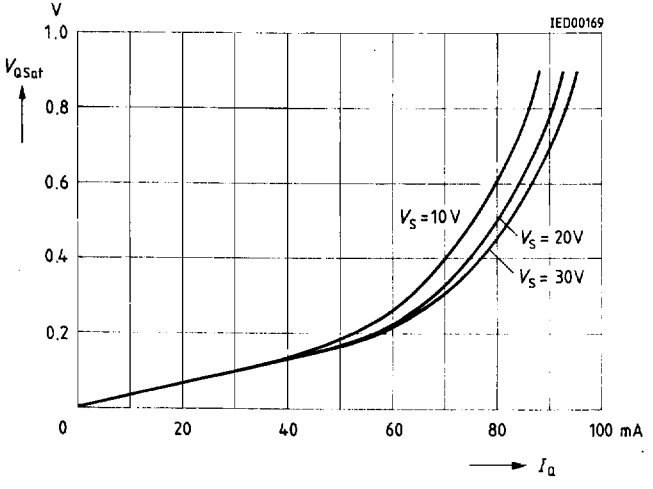
Parameter	Symbol	Limit Values $T_A = 25\,^\circ C$			Limit Values $T_A = -55$ to $125\,^\circ C$		Unit
		min.	typ.	max.	min.	max.	
Input offset voltage, $R_G = 50\,\Omega$	V_{IO}	– 4		4	– 6	6	mV
Input offset voltage Input current	I_{IO} I_I	– 50	 40	50 100	– 75	75 150	nA nA
Open-loop voltage gain	G_{VO}	75			70		dB

Typical Characteristics of Electrical Parameters

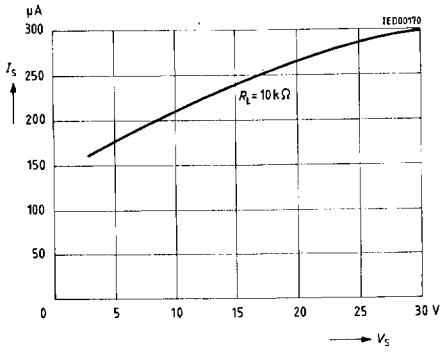
Load Characteristics
Output Saturation Voltage versus Output Current



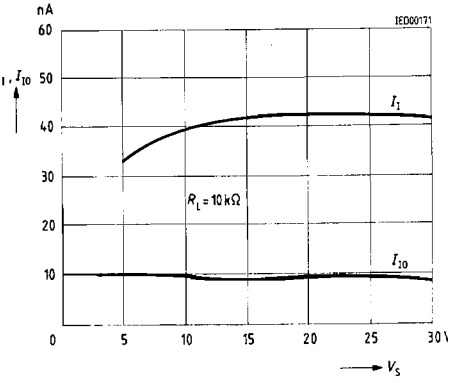
Output Saturation Voltage versus Output Current



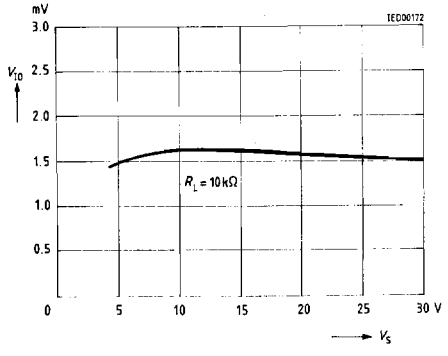
Supply Current versus Supply Voltage



Input Current and Input Offset Current versus Supply Voltage



Input Offset Voltage versus Supply Voltage



V_{IO} Behavior at Low Operating Voltages Input Offset Voltage versus Supply Voltage