



**Discrete POWER & Signal
Technologies**

TN6719A



NPN High Voltage Amplifier

This device is designed for use in high voltage applications .
Sourced from Process 48. See MPSA42 for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	300	V
V _{CBO}	Collector-Base Voltage	300	V
V _{EBO}	Emitter-Base Voltage	7.0	V
I _C	Collector Current - Continuous	200	mA
T _J , T _{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		TN6719A	
P _D	Total Device Dissipation Derate above 25°C	1.0 8.0	W mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	125	°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	50	°C/W

NPN High Voltage Amplifier
(continued)

Electrical Characteristics TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
--------	-----------	-----------------	-----	-----	-------

OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 1.0 \text{ mA}, I_B = 0$	300		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \text{ } \mu\text{A}, I_E = 0$	300		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 1.0 \text{ mA}, I_C = 0$	7.0		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 200 \text{ V}, I_E = 0$		100	nA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 6.0 \text{ V}, I_C = 0$		100	nA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$V_{CE} = 10 \text{ V}, I_C = 1.0 \text{ mA}$ $V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$ $V_{CE} = 10 \text{ V}, I_C = 30 \text{ mA}$	25 40 40	200	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 30 \text{ mA}, I_B = 3.0 \text{ mA}$		0.75	V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE} = 10 \text{ V}, I_C = 30 \text{ mA}$		0.85	V

SMALL SIGNAL CHARACTERISTICS

C_{cb}	Collector-Base Capacitance	$V_{CB} = 20 \text{ V}, f = 1.0 \text{ MHz}$		3.5	pF
h_{fe}	Small-Signal Current Gain	$I_C = 15 \text{ mA}, V_{CE} = 100 \text{ V},$ $f = 20 \text{ MHz}$	1.5	15	

*Pulse Test: Pulse Width $\leq 300 \text{ } \mu\text{s}$, Duty Cycle $\leq 2.0\%$