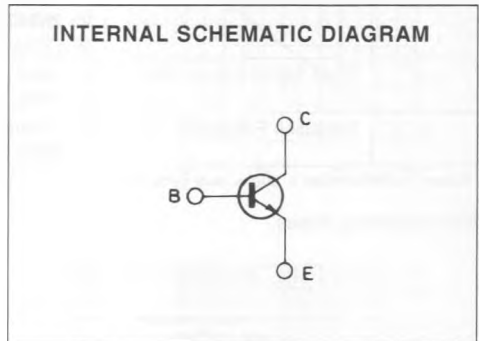
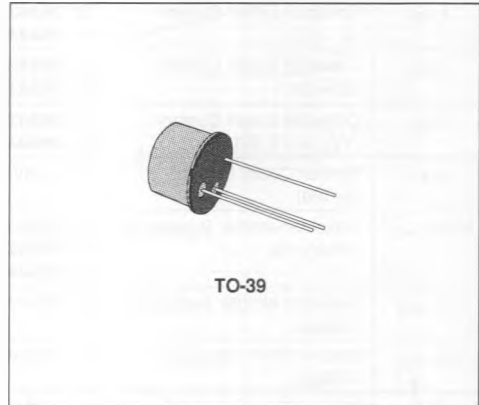


HIGH VOLTAGE TRANSISTORS

DESCRIPTION

The 2N3439, 2N3440 are high voltage silicon epitaxial planar transistors designed for use in consumer and industrial line-operated applications. These devices are particularly suited as drivers in high-voltage low current inverters, switching and series regulators.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	2N3439	2N3440	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	450	300	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	350	250	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)		7	V
I_C	Collector Current		1	A
I_B	Base Current		0.5	A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$ $T_{amb} \leq 50^\circ\text{C}$		10	W
			1	W
T_{stg}	Storage Temperature	- 65 to 200		$^\circ\text{C}$
T_J	Junction Temperature	200		$^\circ\text{C}$

THERMAL DATA

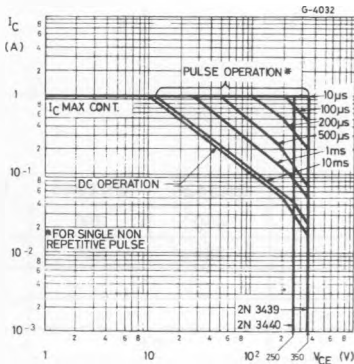
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	17.5	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	150	°C/W

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

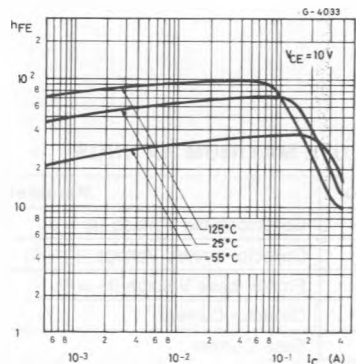
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	for 2N3439 $V_{CB} = 360V$ for 2N3440 $V_{CB} = 250V$			20 20	μA μA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	for 2N3439 $V_{CE} = 300V$ for 2N3440 $V_{CE} = 200V$			20 50	μA μA
I_{CEX}	Collector Cutoff Current ($V_{BE} = -1.5V$)	for 2N3439 $V_{CE} = 450V$ for 2N3440 $V_{CE} = 300V$			500 500	μA μA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 6V$			20	μA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage ($I_B = 0$)	$I_C = 50mA$ for 2N3439 for 2N3440	350 250			V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 50mA$ $I_B = 4mA$			0.5	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 50mA$ $I_B = 4mA$			1.3	V
C_{ob}	Output Capacitance	$V_{CB} = 10V, f = 1MHz$			10	pF
h_{FE}^*	DC Current Gain	$I_C = 20mA$ $V_{CE} = 10V$ for 2N3439 $I_C = 2mA$ $V_{CE} = 10V$	40 30		160	
h_{FE}	Small Signal Current Gain	$I_C = 5mA$ $V_{CE} = 10V$ $f = 1KHz$	25			
f_T	Transition Frequency	$I_C = 10mA$ $V_{CE} = 10V$ $f = 5MHz$	15			MHz

* Pulsed : pulse duration = 300 μs , duty cycle \leq 2%.

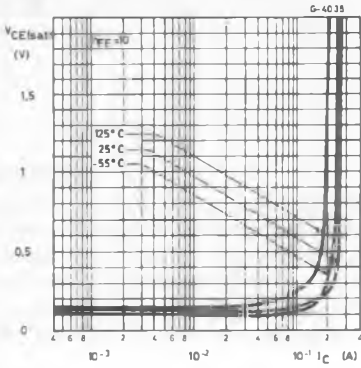
Safe Operating Areas.



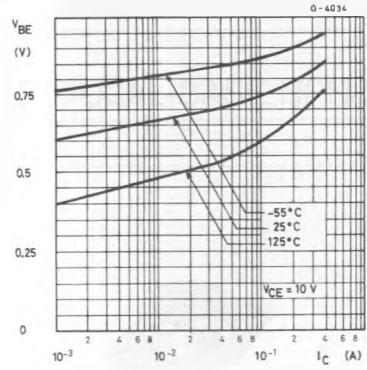
DC Current Gain.



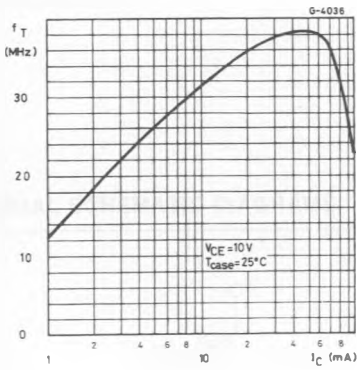
Collector-emitter Saturation Voltage.



Base-emitter Voltage.



Transition Frequency.



Power Rating Chart.

