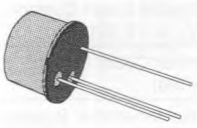
SGS-THOMSON
MICROELECTRONICS

2N3439
2N3440

HIGH VOLTAGE TRANSISTORS

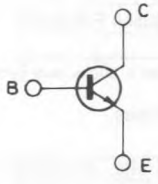
DESCRIPTION

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.



TO-39

INTERNAL SCHEMATIC DIAGRAM



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 $T_{case} \leq 25°C$ $T_{amb} \leq 50°C$	10 1		W W
T_{stg}	Storage Temperature	– 65 to 200		°C
T_j	Junction Temperature	200		°C

THERMAL DATA

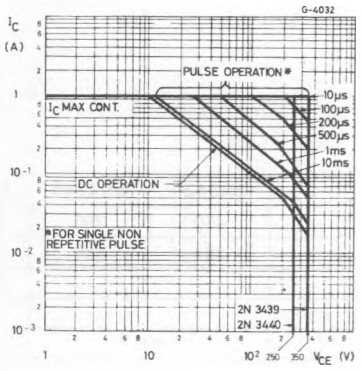
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	17.5	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	150	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

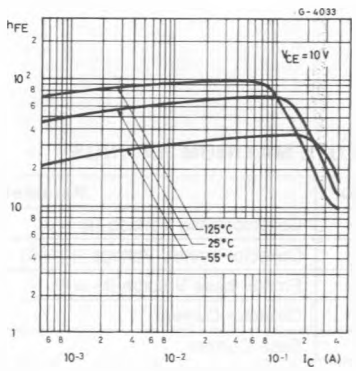
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	for **2N3439** V_{CB} = 360V for **2N3440** V_{CB} = 250V			20 20	µA µA
I_{CEO}	Collector Cutoff Current (I_B = 0)	for **2N3439** V_{CE} = 300V for **2N3440** V_{CE} = 200V			20 50	µA µA
I_{CEX}	Collector 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 = 300µs, duty cycle ≤ 2%.

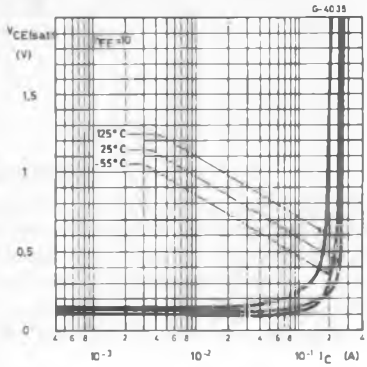
Safe Operating Areas.



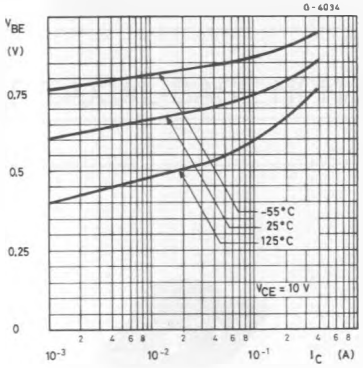
DC Current Gain.



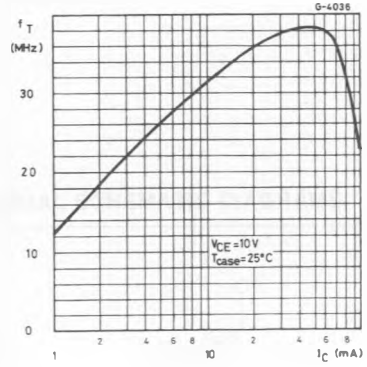
Collector-emitter Saturation Voltage.



Base-emitter Voltage.



Transition Frequency.



.Power Rating Chart.