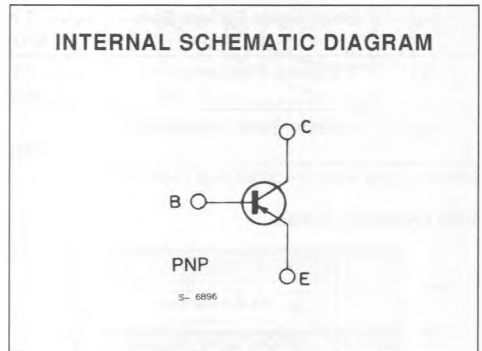
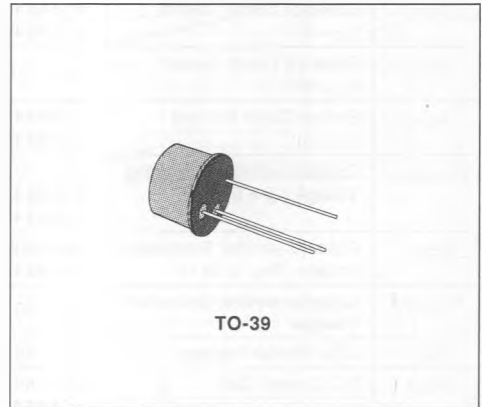


## HIGH VOLTAGE TRANSISTORS

### DESCRIPTION

The 2N5415, 2N5416 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	2N5415	2N5416	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	- 200	- 350	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	- 200	- 300	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	- 4	- 6	V
$I_C$	Collector Current		- 1	A
$I_B$	Base Current		- 0.5	A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^\circ C$ $T_{amb} \leq 50^\circ C$	10		W
		1		W
$T_{stg}$	Storage Temperature	- 65 to 200		$^\circ C$
$T_J$	Junction Temperature	200		$^\circ C$

**THERMAL DATA**

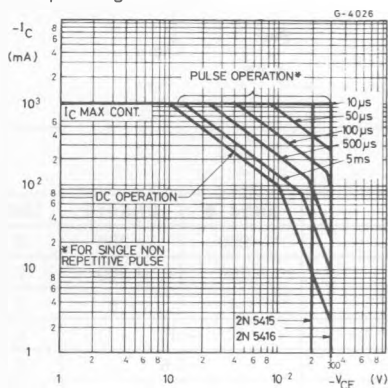
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	17.5	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	150	°C/W

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25\text{ °C}$  unless otherwise specified)

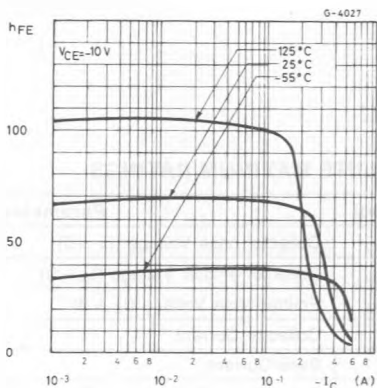
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	for <b>2N5415</b> $V_{CB} = -175\text{ V}$ for <b>2N5416</b> $V_{CB} = -280\text{ V}$			- 50 - 50	$\mu\text{A}$ $\mu\text{A}$
$I_{CEO}$	Collector Cutoff Current ( $I_B = 0$ )	$V_{CE} = -150\text{ V}$			- 50	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	for <b>2N5415</b> $V_{EB} = -4\text{ V}$ for <b>2N5416</b> $V_{EB} = -6\text{ V}$			- 20 - 20	$\mu\text{A}$ $\mu\text{A}$
$V_{CEO(SUS)}^*$	Collector-emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = -10\text{ mA}$ for <b>2N5415</b> for <b>2N5416</b>	- 200 - 300			V V
$V_{CER}^*$	Collector-emitter Sustaining Voltage ( $R_{BE} = 50\ \Omega$ )	$I_C = -50\text{ mA}$ for <b>2N5416</b>	- 350			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = -50\text{ mA}$ $I_B = -5\text{ mA}$			- 2.5	V
$V_{BE}^*$	Base-emitter Voltage	$I_C = -50\text{ mA}$ $V_{CE} = -10\text{ V}$			- 1.5	V
$h_{FE}^*$	DC Current Gain	$I_C = -50\text{ mA}$ $V_{CE} = -10\text{ V}$ for <b>2N5415</b> for <b>2N5416</b>	30 30		150 120	
$h_{ie}$	Small Signal Current Gain	$I_C = -5\text{ mA}$ $f = 1\text{ KHz}$	25			
$f_T$	Transition Frequency	$I_C = -10\text{ mA}$ $f = 5\text{ MHz}$	15			MHz
$C_{CBO}$	Collector-base Capacitance	$I_E = 0$ $f = 1\text{ MHz}$			25	pF

\* Pulsed : pulse duration = 300 $\mu\text{s}$ , duty cycle  $\leq$  2%.

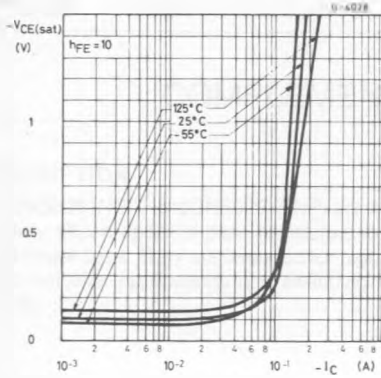
**Safe Operating Areas.**



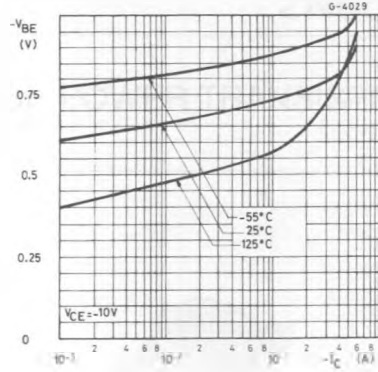
**DC Current Gain.**



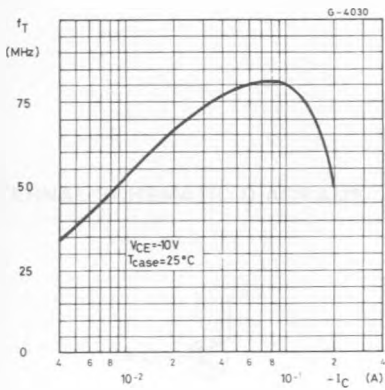
Collector-emitter Saturation Voltage.



Base-emitter Voltage.



Transition Frequency.



Switching Times.

