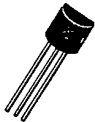


# GES5814, GES5815, GES5816 GES5817, GES5818, GES5819



TO-92

## Silicon Transistors

### Features:

- Excellent gain linearity over wide range of collector current:  $\leq 500$  mA
- High collector current rating: 1000 mA (pulsed)
- Epoxy encapsulation with proved reliability:  
excellent characteristics stability under environmental stresses, 85°C — 85#RH

The GE/RCA GES5814, GES5816, and GES5818 NPN types and GES5815, GES5817, and GES5819 PNP types are planar, passivated, epitaxial silicon transistors intended for wide range general purpose applications operating in audio

and intermediat frequency ranges. PNP values are negative; observe proper polarity.

These types are supplied in JEDEC TO-92 package.

### MAXIMUM RATINGS, Absolute-Maximum Values:

	GES5814	GES5815	
	GES5816	GES5817	
	GES5818	GES5819	
COLLECTOR TO EMITTER VOLTAGE ( $V_{CE0}$ )	40	- 40	V
COLLECTOR TO EMITTER VOLTAGE ( $V_{CES}$ )	50	- 50	V
EMITTER TO BASE VOLTAGE ( $V_{EBO}$ )	5	- 5	V
COLLECTOR TO BASE VOLTAGE ( $V_{CBO}$ )	50	- 50	V
CONTINUOUS COLLECTOR CURRENT ( $I_C$ )	750	- 750	mA
COLLECTOR CURRENT (Pulsed)* ( $I_{CM}$ )	1000	- 1000	mA
TOTAL POWER DISSIPATION $T_A \leq 25^\circ\text{C}$ ( $P_T$ )	500		mW
DERATE FACTOR, $T_A > 25^\circ\text{C}$	4.55		mW/ $^\circ\text{C}$
OPERATING TEMPERATURE ( $T_J$ )	- 65° to + 135		$^\circ\text{C}$
STORAGE TEMPERATURE ( $T_{STG}$ )	- 65° to + 160		$^\circ\text{C}$
LEAD TEMPERATURE, $1/16'' \pm 1/32''$ (1.58mm $\pm$ 0.8mm) from case for 10s max ( $T_L$ )	+ 260		$^\circ\text{C}$

### TERMINAL CONNECTIONS

- Lead 1 - Emitter
- Lead 2 - Base
- Lead 3 - Collector

# GES5814, GES5815, GES5816 GES5817, GES5818, GES5819

T-29-2

ELECTRICAL CHARACTERISTICS, At Ambient Temperature ( $T_A$ ) = 25°C Unless Otherwise Specified

CHARACTERISTICS	SYMBOL	LIMITS				
		GES5814, GES5816, GES5818		GES5815, GES5817, GES5819		
		MIN.	MAX.	MIN.	MAX.	
Collector-Emitter Breakdown Voltage ( $I_C = 10\text{mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	40	—	-40	—	V
Emitter-Base Breakdown Voltage ( $I_E = 10\mu\text{A}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5	—	-5	—	
Collector-Emitter Breakdown Voltage ( $I_C = 10\mu\text{A}$ , $V_{BE} = 0$ )	$V_{(BR)ICES}$	50	—	-50	—	
Collector-Emitter Saturation Voltage ( $I_C = 500\text{mA}$ , $I_B = 50\text{mA}$ )*	$V_{CE(SAT)}$	—	0.75	—	-0.75	
Base-Emitter Saturation Voltage ( $I_C = 500\text{mA}$ , $I_B = 50\text{mA}$ )*	$V_{BE(SAT)}$	—	1.2	—	-1.2	
Base-Emitter Voltage ( $I_C = 500\text{mA}$ , $V_{CE} = 2\text{V}$ )*	$V_{BE}$	0.6	1.1	-0.6	-1.1	
Collector-Cutoff Current ( $V_{CB} = -25\text{V}$ , $I_E = 0$ )	$I_{CBO}$	—	100	—	-100	$\mu\text{A}$
( $V_{CB} = 25\text{V}$ , $I_E = 0$ , $T_A = 100^\circ\text{C}$ )		—	15	—	-15	
Emitter-Base Reverse Current ( $V_{EB} = 5\text{V}$ , $I_C = 0$ )	$I_{EBO}$	—	10	—	-10	$\mu\text{A}$
DC Forward Current Transfer Ratio ( $V_{CE} = 2\text{V}$ , $I_C = 2\text{mA}$ ) GES5814, GES5815 GES5816, GES5817 GES5818, GES5819  ( $V_{CE} = 2\text{V}$ , $I_C = 500\text{mA}$ ) GES5814, GES5815 GES5816, GES5817 GES5818, GES5819	$h_{FE}$	60 min.		160 max.		—
		100 min.		200 max.		
		150 min.		300 max.		
		20 min.				
		25 min.				
		25 min.				
Emitter-Base Input Capacitance ( $V_{EB} = 0.5\text{V}$ , $I = 0$ , $f = 1\text{MHz}$ )	$C_{eb}$	—	55	—	55	pF
Collector-Base Output Capacitance ( $V_{CB} = 10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$ )	$C_{cb}$	—	15	—	15	
Gain-Bandwidth Product ( $V_{CE} = 2\text{V}$ , $I_C = 50\text{mA}$ , $F = 20\text{MHz}$ ) GES5814, GES5815 GES5816, GES5817 GES5818, GES5819	$f_T$		100 min. 120 min. 135 min.			MHz

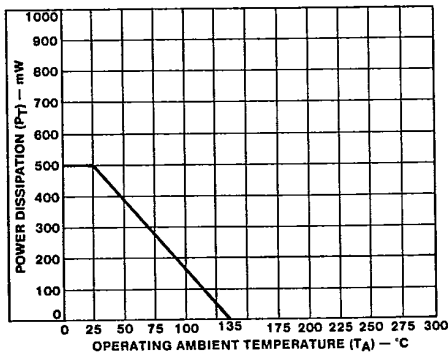


Fig. 1 — Derating curve for all types.

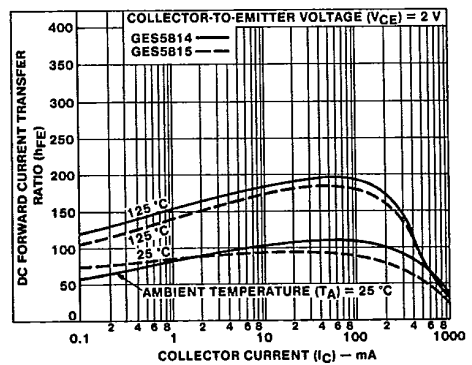


Fig. 2 — Typical dc forward-current transfer ratio characteristics for GES5814 and GES5815.

# GES5814, GES5815, GES5816 GES5817, GES5818, GES5819

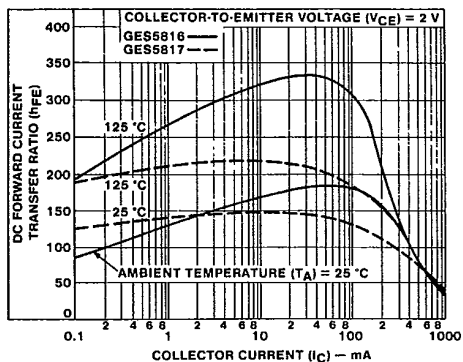


Fig. 3—Typical dc forward-current transfer ratio characteristics for GES5816, and GES5817.

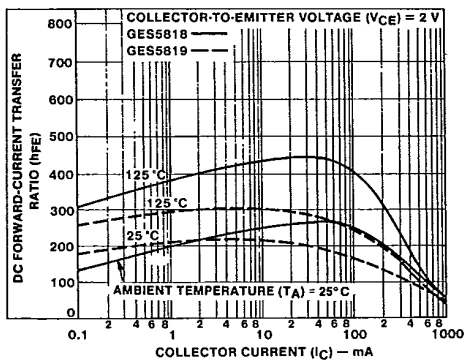


Fig. 4—Typical dc forward-current transfer ratio characteristics for GES5818 and GES5819.

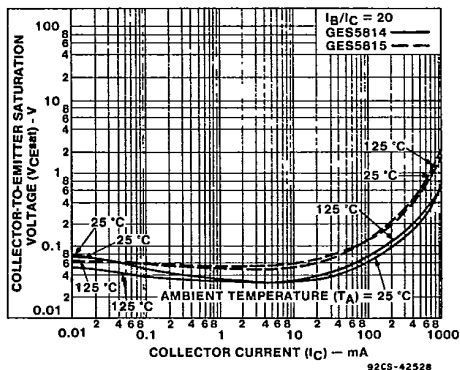


Fig. 5—Typical collector-to-emitter saturation voltage characteristics for GES5814 and GES5815 ( $h_{FE} = 20$ ).

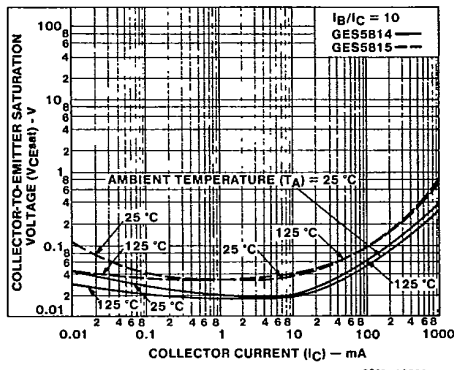


Fig. 6—Typical collector-to-emitter saturation voltage characteristics for GES5814 and GES5815 at  $h_{FE} = 10$ .

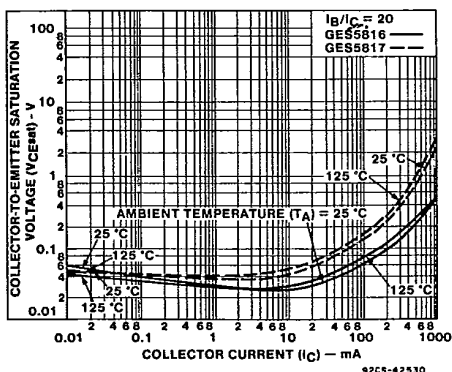


Fig. 7—Typical collector-to-emitter saturation voltage characteristics for GES5816 and GES5817 at  $h_{FE} = 20$ .

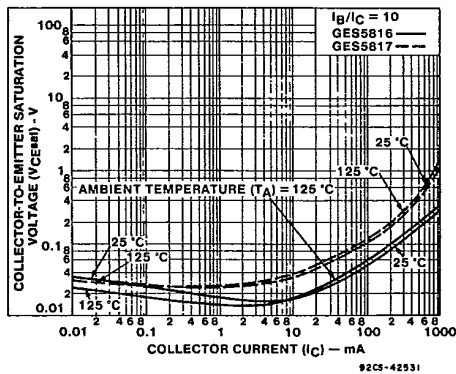


Fig. 8—Typical collector-to-emitter saturation voltage characteristics for GES5816 and GES5817 at  $h_{FE} = 10$ .

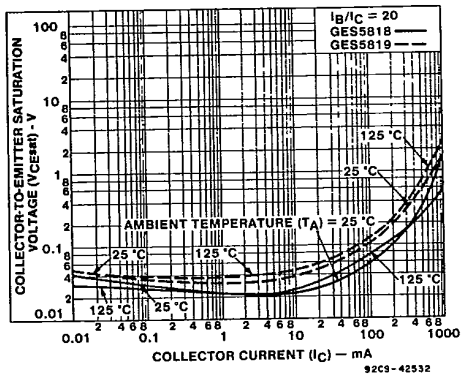


Fig. 9—Typical collector-to-emitter saturation voltage characteristics for GES5818 and GES5819 at  $h_{FE} = 20$ .

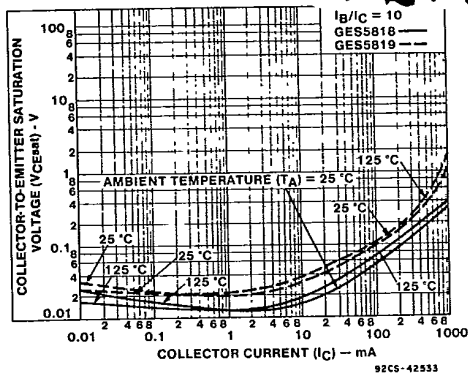


Fig. 10—Typical collector-to-emitter saturation voltage characteristics for GES5818 and GES5819 at  $h_{FE} = 10$ .

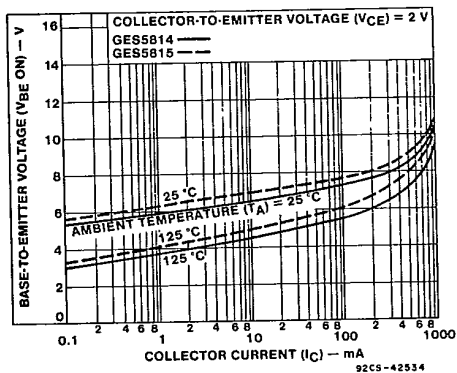


Fig. 11—Typical base-to-emitter voltage characteristics for GES5814 and GES5815.

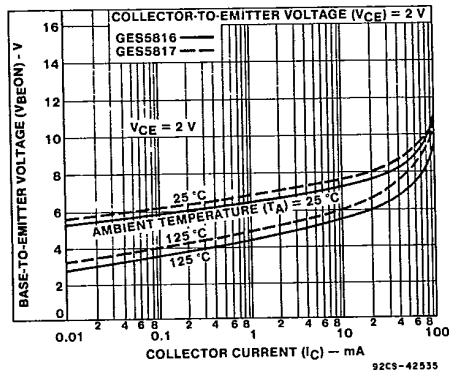


Fig. 12—Typical base-to-emitter voltage characteristics for GES5816 and GES5817.

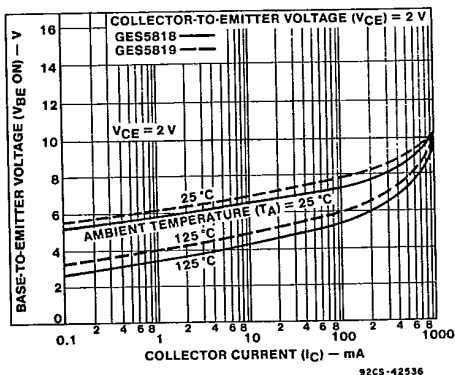


Fig. 13—Typical base-to-emitter voltage characteristics for GES5818 and GES5819.

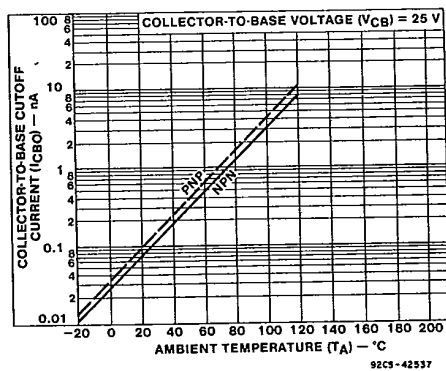


Fig. 14—Typical collector-to-base cutoff current characteristics for all types.