

3875081 G E SOLID STATE

01E 17974 D

T-29-21

Signal Transistors

**GES5814, GES5815, GES5816  
GES5817, GES5818, GES5819**

**Silicon Transistors**



TO-92

**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 intermedat 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 ( $V_{CB0}$ )	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/°C
OPERATING TEMPERATURE ( $T_J$ )	-65° to +135		°C
STORAGE TEMPERATURE ( $T_{STG}$ )	-65° to +150		°C
LEAD TEMPERATURE, $1/16" \pm 1/32"$ (1.58mm $\pm$ 0.8mm) from case for 10s max ( $T_L$ )	+260		°C

**TERMINAL CONNECTIONS**

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

File Number 2096

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GES5817, GES5818, GES5819**

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

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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 ( $I_C = 10\mu\text{A}, V_{BE} = 0$ )	$V_{(BR)CES}$	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		$n_A$
( $V_{CB} = 25\text{V}, I_E = 0, T_A = 100^\circ\text{C}$ )		—	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 ( $V_{CE} = 2\text{V}, I_C = 2\text{mA}$ )	$h_{FE}$	GES5814, GES5815	60 min.	160 max.	—		
		GES5816, GES5817	100 min.	200 max.			
		GES5818, GES5819	150 min.	300 max.			
		( $V_{CE} = 2\text{V}, I_C = 500\text{mA}$ )	20 min.				
		GES5814, GES5815	25 min.				
GES5816, GES5817	25 min.						
GES5818, GES5819	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 ( $V_{CE} = 2\text{V}, I_C = 50\text{mA}, F = 20\text{MHz}$ )	$f_T$	GES5814, GES5815	100 min.		MHz		
GES5816, GES5817		120 min.					
GES5818, GES5819		135 min.					

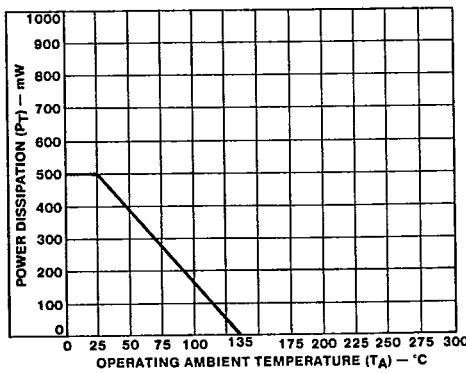


Fig. 1 — Derating curve for all types.

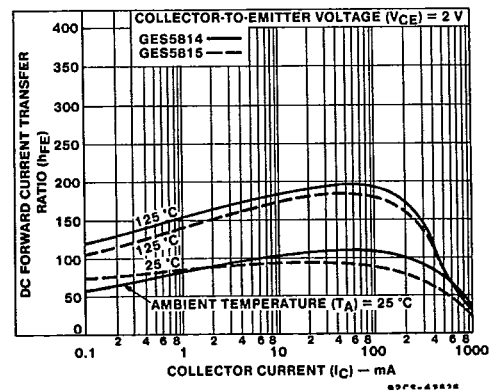


Fig. 2 — Typical dc forward-current transfer ratio characteristics for GES 5814 and GES 5815.

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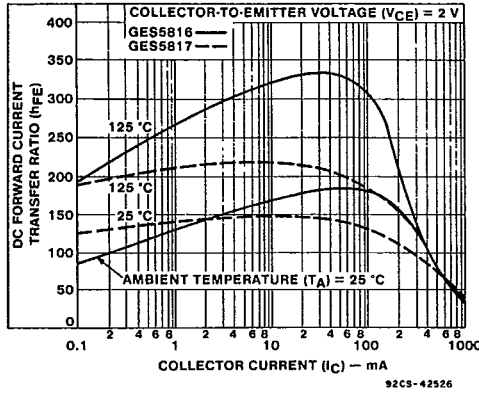


Fig. 3—Typical dc forward-current transfer ratio characteristics for GES5816, and GES5817.

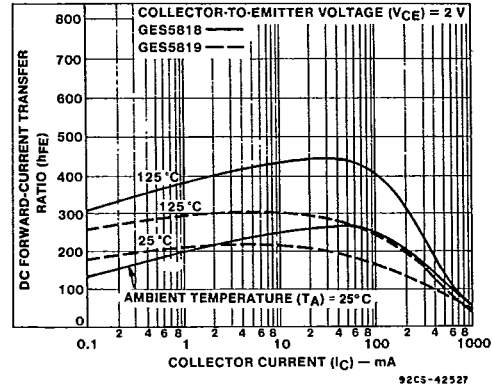


Fig. 4—Typical dc forward-current transfer ratio characteristics for GES5818 and GES5819.

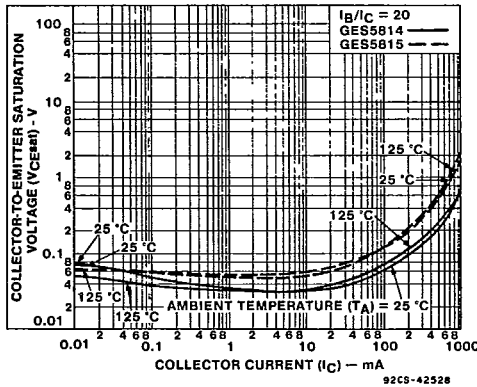


Fig. 5—Typical collector-to-emitter saturation voltage characteristics for GES5814 and GES5815 (h<sub>FE</sub> = 20).

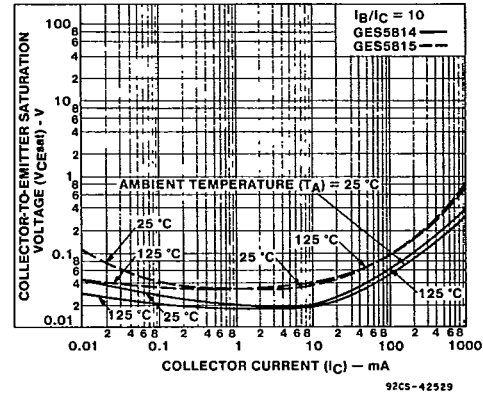


Fig. 6—Typical collector-to-emitter saturation voltage characteristics for GES5814 and GES5815 at h<sub>FE</sub> = 10.

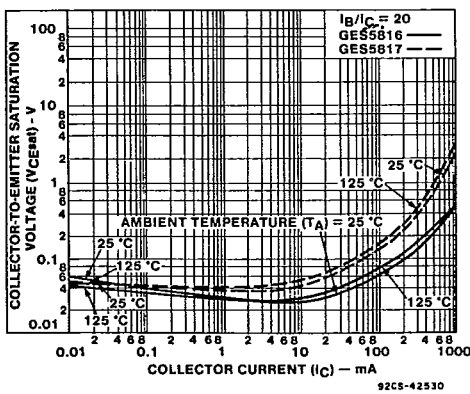


Fig. 7—Typical collector-to-emitter saturation voltage characteristics for GES5816 and GES5817 at h<sub>FE</sub> = 20.

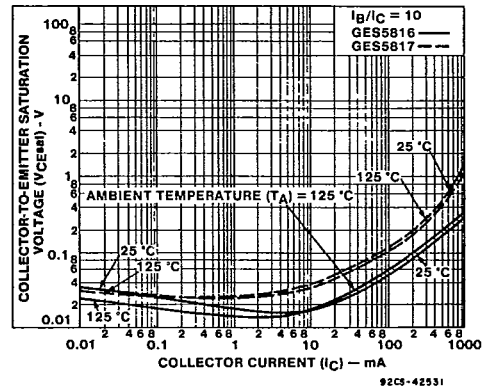


Fig. 8—Typical collector-to-emitter saturation voltage characteristics for GES5816 and GES5817 at h<sub>FE</sub> = 10.

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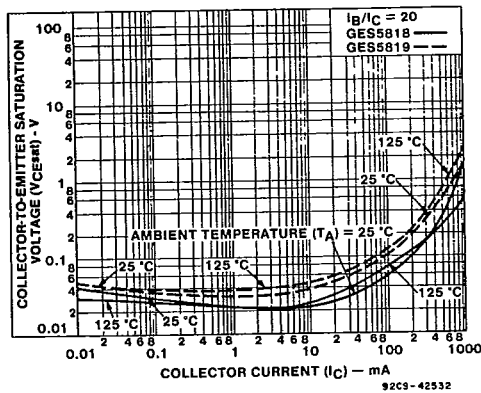


Fig. 9—Typical collector-to-emitter saturation voltage characteristics for GES5818 and GES5819 at  $h_{FE} = 20$ .

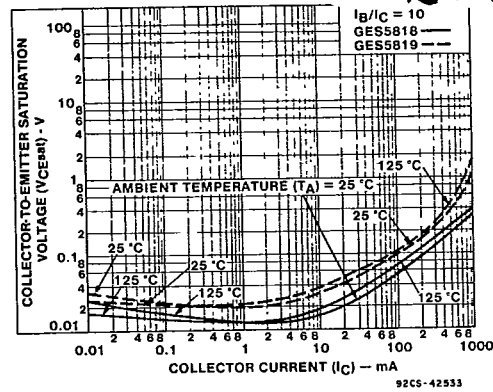


Fig. 10—Typical collector-to-emitter saturation voltage characteristics for GES5818 and GES5819 at  $h_{FE} = 10$ .

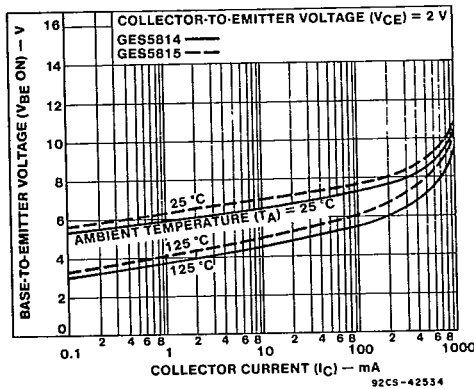


Fig. 11—Typical base-to-emitter voltage characteristics for GES5814 and GES5815.

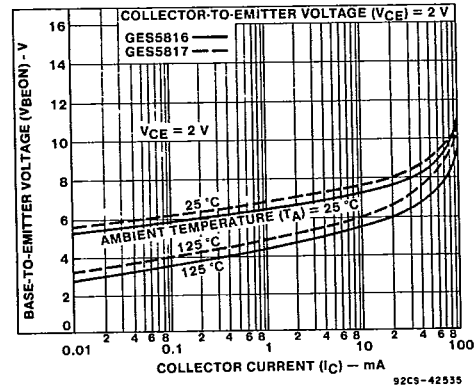


Fig. 12—Typical base-to-emitter voltage characteristics for GES5816 and GES5817.

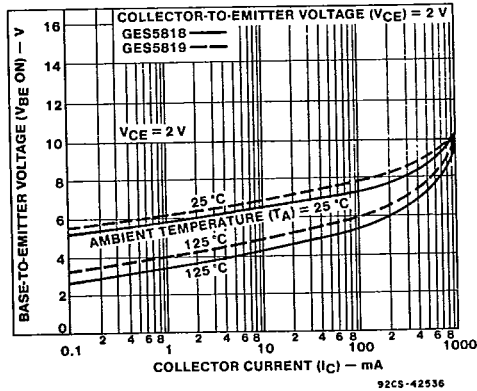


Fig. 13—Typical base-to-emitter voltage characteristics for GES5818 and GES5819.

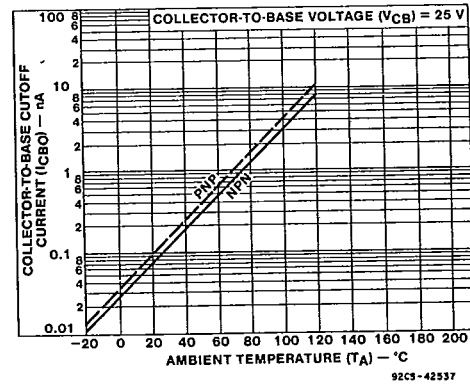


Fig. 14—Typical collector-to-base cutoff current characteristics for all types.