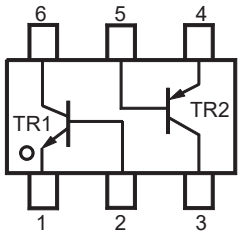
GOOD-ARK
SEMICONDUCTOR

GSBC845xxDE
Complementary NPN+PNP Transistors

Features

- Epitaxial die construction
- Isolated NPN and PNP in one package

SOT-563



Schematic Diagram

Maximum Ratings (T_A=25°C unless otherwise noted): TR1&TR2

Parameter		Symbol	Value		Unit
			NPN	PNP	
Collector Base Voltage	GSBC8456xDE	V_{CBO}	80	-80	V
	GSBC8457xDE		50	-50	
	GSBC8458xDE		30	-30	
Collector Emitter Voltage	GSBC8456xDE	V_{CEO}	65	-65	V
	GSBC8457xDE		45	-45	
	GSBC8458xDE		30	-30	
Emitter Base Voltage	GSBC8456xDE	V_{EBO}	6	-5	V
	GSBC8457xDE		6		
	GSBC8458xDE		5		
Collector Current		I_C	100	-100	mA
Peak Collector Current		I_{CM}	200	-200	mA
Total Power Dissipation		P_{tot}	200		mW
Thermal Resistance Junction to Ambient[1]		$R_{\theta JA}$	625		°C/W
Junction Temperature		T_J	150		°C
Storage Temperature Range		T_{stg}	-55 to +150		°C

Note:

1. Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.

Electrical Characteristics (T_A=25°C unless otherwise noted): TR1

Parameter		Symbol	Conditions	Min.	Max.	Unit
DC Current Gain	GSBC8456ADE-GSBC8458ADE	h_{FE}	V_{CE}=5V, I_C=2mA	110	220	-
	GSBC8456BDE-GSBC8458BDE			200	450	-
	GSBC8456CDE-GSBC8458CDE			420	800	-
Collector Base Breakdown Voltageat	GSBC8456xDE	$V_{(BR)CBO}$	I_C=50μA	80	-	V
	GSBC8457xDE			50	-	
	GSBC8458xDE			30	-	
Collector Emitter Breakdown Voltage	GSBC8456xDE	$V_{(BR)CEO}$	I_C=10mA	65	-	V
	GSBC8457xDE			45	-	
	GSBC8458xDE			30	-	
Emitter Base Breakdown Voltage	GSBC8456xDE	$V_{(BR)EBO}$	I_E=50μA	6	-	V
	GSBC8457xDE			6	-	
	GSBC8458xDE			5	-	
Collector Base Cutoff Current		I_{CBO}	V_{CB}=30V	-	15	nA
Emitter Base Cutoff Current		I_{EBO}	V_{EB}=5V	-	100	nA
Collector Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=10mA, I_B=0.5mA	-	0.25	V
			I_C=100mA, I_B=5mA	-	0.6	
Base Emitter Voltage		V_{BE}	V_{CE}=5V, I_C=2mA	0.58	0.7	V
			V_{CE}=5V, I_C=10mA	-	0.77	
Transition Frequency		f_T	V_{CE}=5V, I_C=10mA, F=100MHz	100	-	MHz
Collector Output Capacitance		C_{ob}	V_{CB}=10V, I_E=0, F=1MHz	-	4.5	pF

Electrical Characteristics (T_A=25°C unless otherwise noted): TR2

Parameter		Symbol	Conditions	Min.	Max.	Unit
DC Current Gain	GSBC8456ADE-GSBC8458ADE	h_{FE}	V_{CE}=-5V, I_C=-2mA	125	250	-
	GSBC8456BDE-GSBC8458BDE			220	475	-
	GSBC8456CDE-GSBC8458CDE			420	800	-
Collector Base Breakdown Voltage	GSBC8456xDE	$V_{(BR)CBO}$	I_C=-50μA	-80	-	V
	GSBC8457xDE			-50	-	
	GSBC8458xDE			-30	-	
Collector Emitter Breakdown Voltage	GSBC8456xDE	$V_{(BR)CEO}$	I_C=-10mA	-65	-	V
	GSBC8457xDE			-45	-	
	GSBC8458xDE			-30	-	
Emitter Base Breakdown Voltage		$V_{(BR)EBO}$	I_E=-50μA	-5	-	V
Collector Base Cutoff Current		I_{CBO}	V_{CB}=-30V	-	-15	nA
Emitter Base Cutoff Current		I_{EBO}	V_{EB}=-5V	-	-100	nA
Collector Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=-10mA, I_B=-0.5mA	-	-0.3	V
			I_C=-100mA, I_B=-5mA	-	-0.65	
Base Emitter Voltage		V_{BE}	V_{CE}=-5V, I_C=-2mA	-0.6	-0.75	V
			V_{CE}=-5V, I_C=-10mA	-	-0.82	
Transition Frequency		f_T	V_{CE}=-5V, I_C=-10mA, F=100MHz	100	-	MHz
Output Capacitance		C_{ob}	V_{CB}=-10V, I_E=0, F=1MHz	-	4.5	pF

Electrical Characteristic Curves: TR1

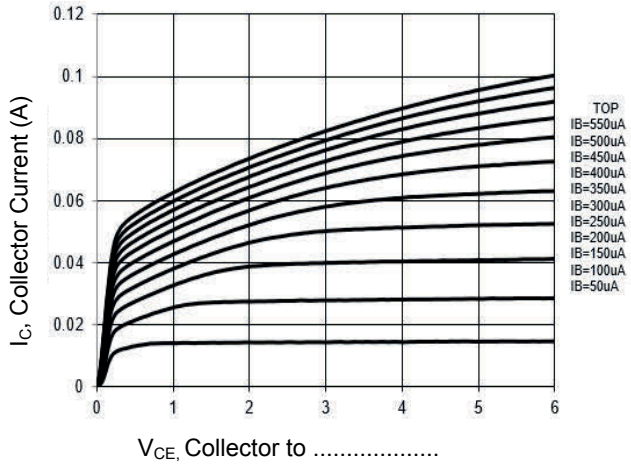


Figure 1. Output Characteristics Curve

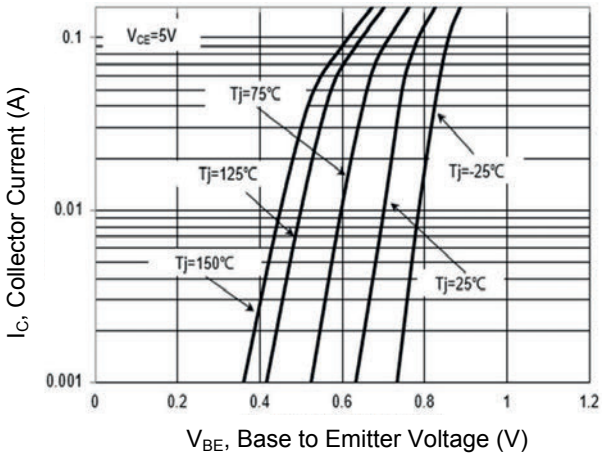


Figure 2. Collector Current vs. Base to Emitter Voltage

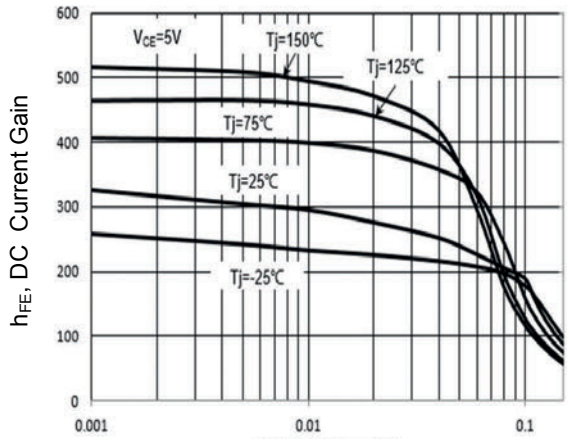


Figure 3. DC Current Gain vs. Collector Current

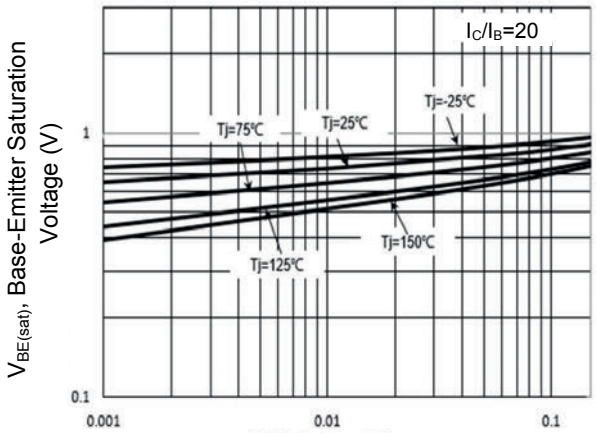


Figure 4. Base-Emitter Saturation Voltage vs. Collector Current

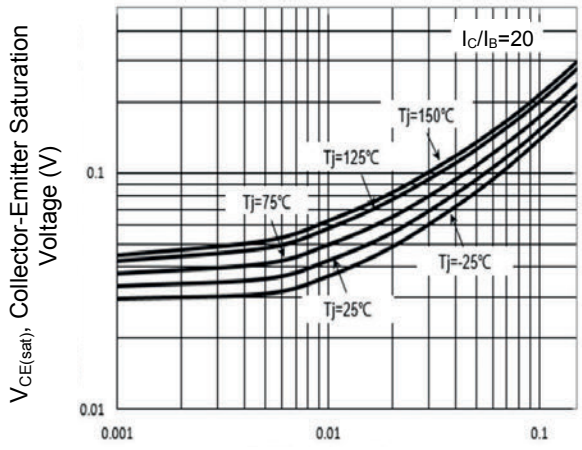


Figure 5. Collector-Emitter Saturation Voltage vs. Collector Current

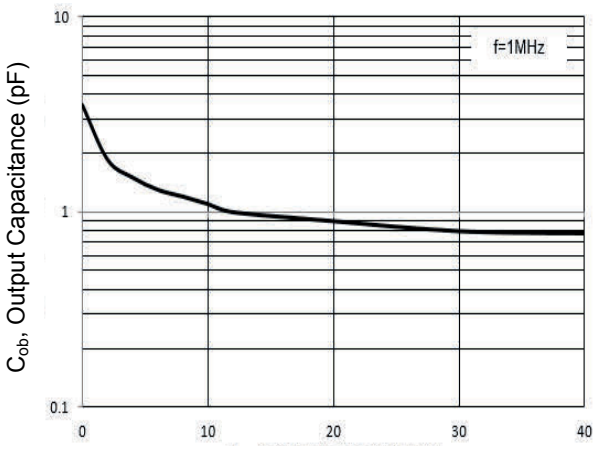


Figure 6. Output Capacitance

Electrical Characteristic Curves: TR2

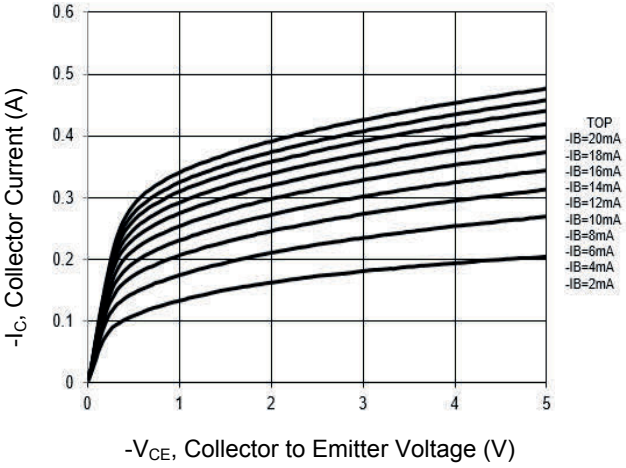


Figure 1. Output Characteristics Curve

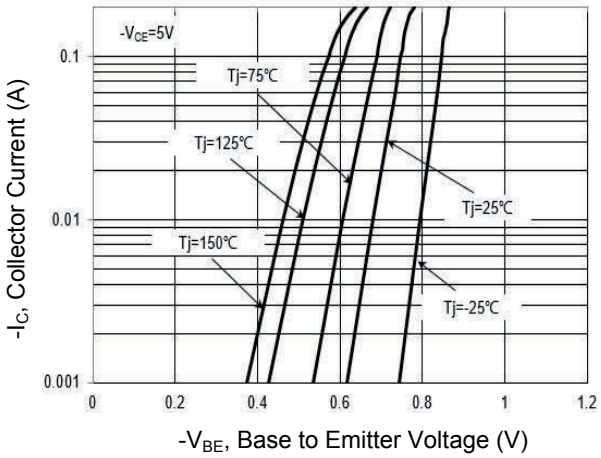
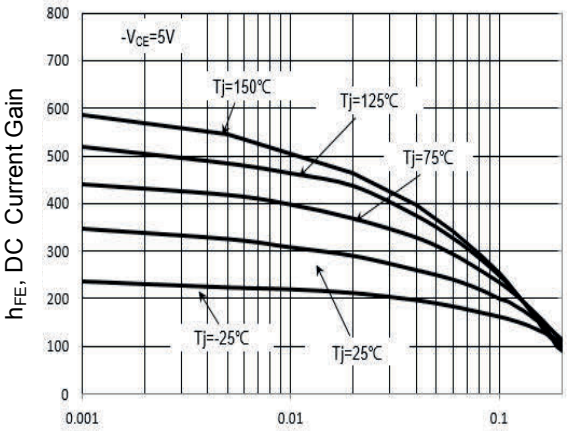


Figure 2. Collector Current vs. Base to Emitter Voltage



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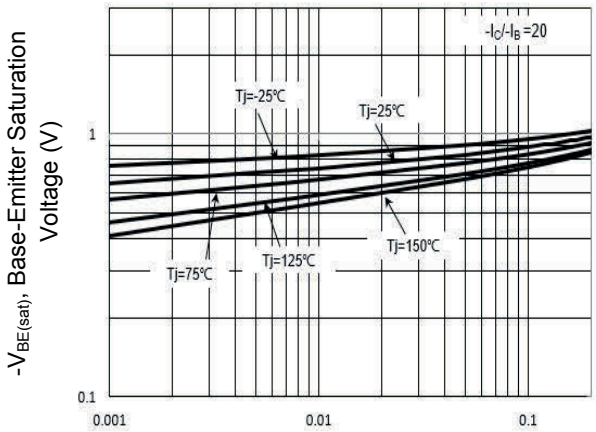


Figure 4. Base-Emitter Saturation Voltage vs. Collector Current

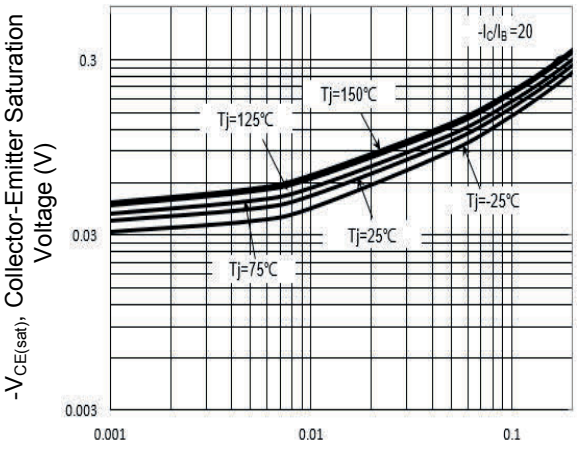


Figure 5. Collector-Emitter Saturation Voltage vs. Collector Current

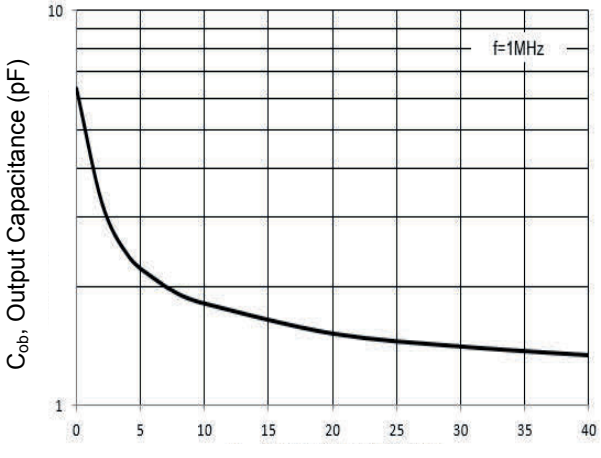
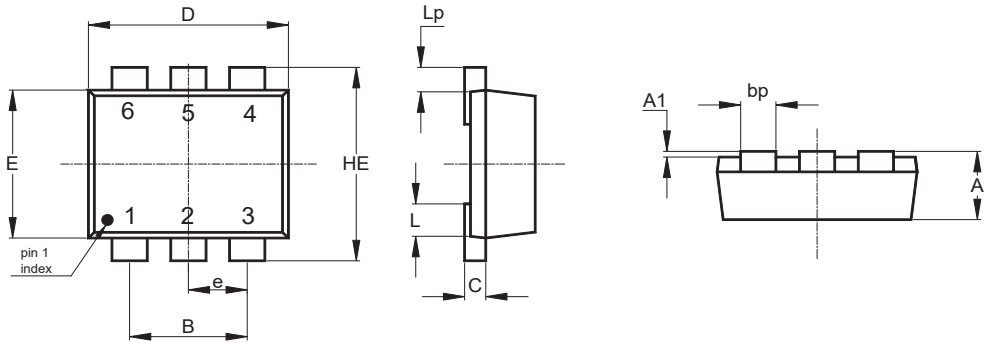


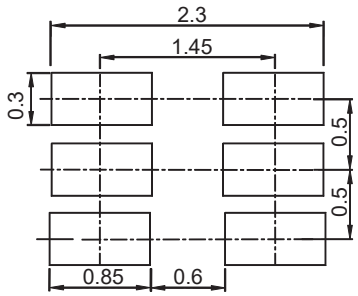
Figure 6. Output Capacitance

Package Outline Dimensions (SOT-563)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.60	0.002	0.024
A1	0.00	0.05	0.000	0.002
B	1.00 Typ.		0.039 Typ.	
C	0.10	0.18	0.004	0.007
D	1.50	1.70	0.059	0.067
E	1.10	1.25	0.043	0.049
HE	1.55	1.70	0.061	0.067
e	0.50 Typ.		0.02 Typ.	
L	0.02	0.15	0.001	0.006
Lp	0.10	0.30	0.004	0.012
bp	0.15	0.30	0.006	0.012

Recommended Pad Layout



unit: mm

Order Information

Device	Package	Marking	Quantity	HSF Status
GSBC8456ADE	SOT-563	1J	4,000pcs / Reel	RoHS Compliant
GSBC8456BDE	SOT-563	1K	4,000pcs / Reel	RoHS Compliant
GSBC8456CDE	SOT-563	1L	4,000pcs / Reel	RoHS Compliant
GSBC8457ADE	SOT-563	1J	4,000pcs / Reel	RoHS Compliant
GSBC8457BDE	SOT-563	1K	4,000pcs / Reel	RoHS Compliant
GSBC8457CDE	SOT-563	1L	4,000pcs / Reel	RoHS Compliant
GSBC8458ADE	SOT-563	1J	4,000pcs / Reel	RoHS Compliant
GSBC8458BDE	SOT-563	1K	4,000pcs / Reel	RoHS Compliant
GSBC8458CDE	SOT-563	1L	4,000pcs / Reel	RoHS Compliant