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Electrical Characteristics, PNP Transistor, Q_1 @T_A = 25°C unless otherwise specified

Characteristic (Note 4)	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-15	—	—	V	I_C = -10μA, I_E = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-12	—	—	V	I_C = -1.0mA, I_B = 0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	—	—	V	I_E = -10μA, I_C = 0
Collector Cutoff Current	I_{CBO}	—	—	-100	nA	V_{CB} = -15V, I_E = 0
Collector Cutoff Current	I_{EBO}	—	—	-100	nA	V_{EB} = -6V, I_C = 0
DC Current Gain	h_{FE}	270	—	680	—	V_{CE} = -2.0V, I_C = -10mA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	-100	-250	mV	I_C = -200mA, I_B = -10mA
Gain-Bandwidth Product	f_T	—	280	—	MHz	V_{CE} = -2.0V, I_E = 10mA, f = 100MHz
Collector Output Capacitance	C_{obo}	—	5	—	pF	V_{CB} = -10V, I_E = 0, f = 1MHz

Electrical Characteristics, Pre-Biased NPN Transistor, Q_2 @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Input Voltage	$V_{I(off)}$	—	—	0.5	V	V_{CC} = 5V, I_O = 100μA
	$V_{I(on)}$	3	—	—	V	V_O = 0.3V, I_O = 10mA
Output Voltage	$V_{O(on)}$	—	0.1	0.3	V	I_O/ I_I = 10mA/0.5 mA
Input Current	I_I	—	—	0.88	mA	V_I = 5V
Output Current	$I_{O(off)}$	—	—	0.5	μA	V_{CC} = 50V, V_I = 0V
DC Current Gain	G_I	30	—	—	—	V_O = 5V, I_O = 5mA
Gain-Bandwidth Product (Note 5)	f_T	—	250	—	MHz	V_{CE} = 10V, I_E = -5mA, f = 100MHz
Input Resistance	R_1	7	10	13	kΩ	—
Resistance Ratio	R_2/R_1	0.8	1	1.2	—	—

Notes: 4. Short duration pulse test used to minimize self-heating effect.
5. Characteristics of the transistor. For reference only.

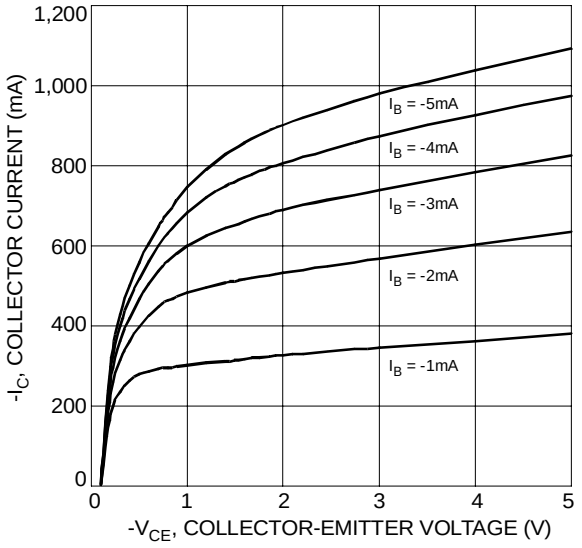


Fig. 1 Typical Collector Current
vs. Collector-Emitter Voltage (Q1, PNP)

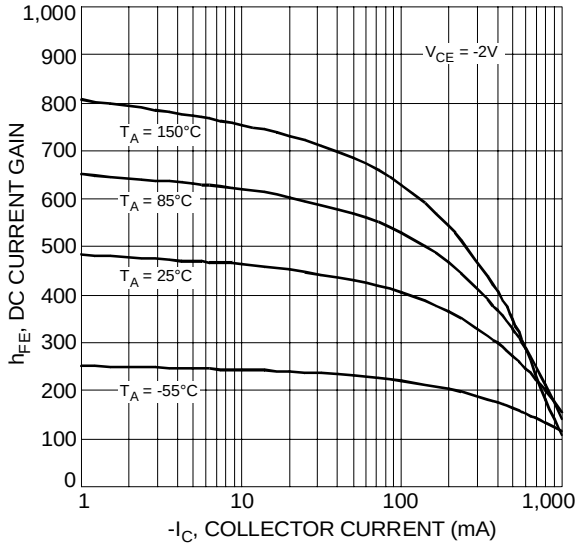


Fig. 2 Typical DC Current Gain
vs. Collector Current (Q1, PNP)

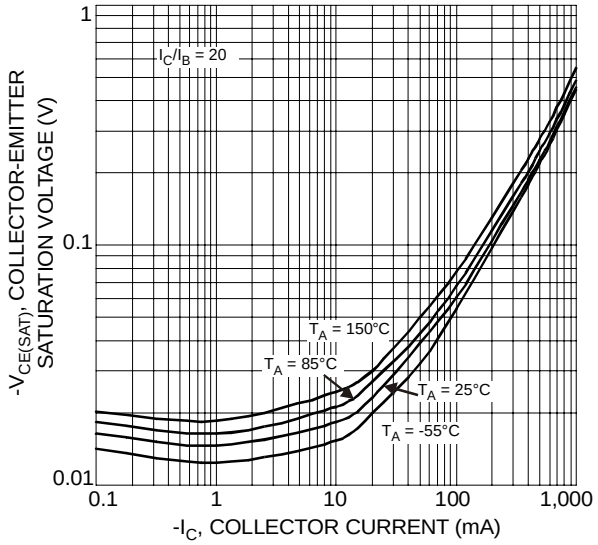


Fig. 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current (Q1, PNP)

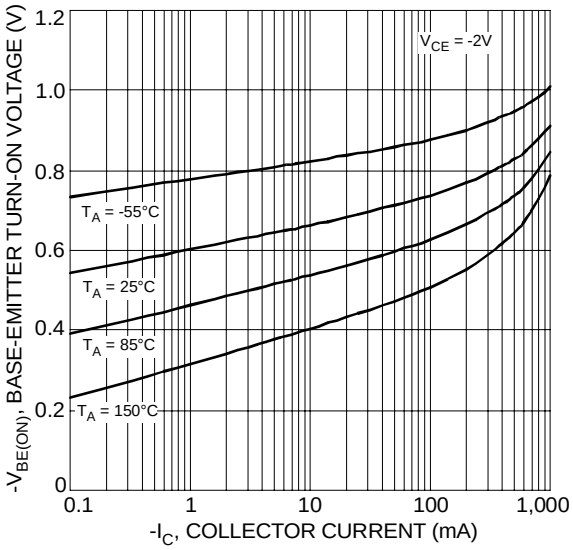


Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current (Q1, PNP)

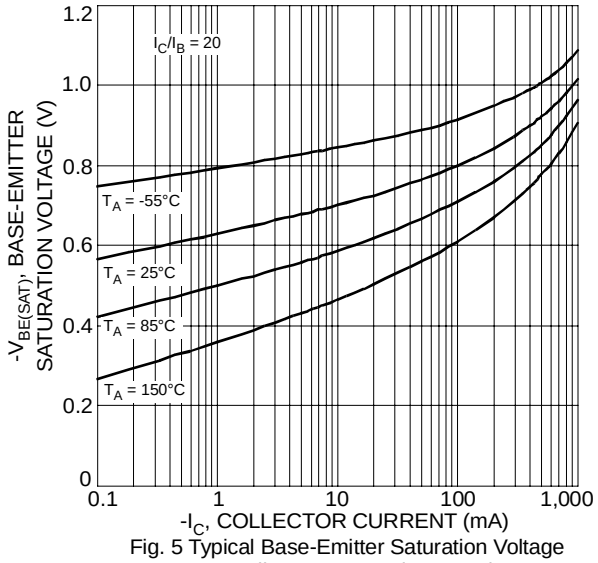


Fig. 5 Typical Base-Emitter Saturation Voltage vs. Collector Current (Q1, PNP)

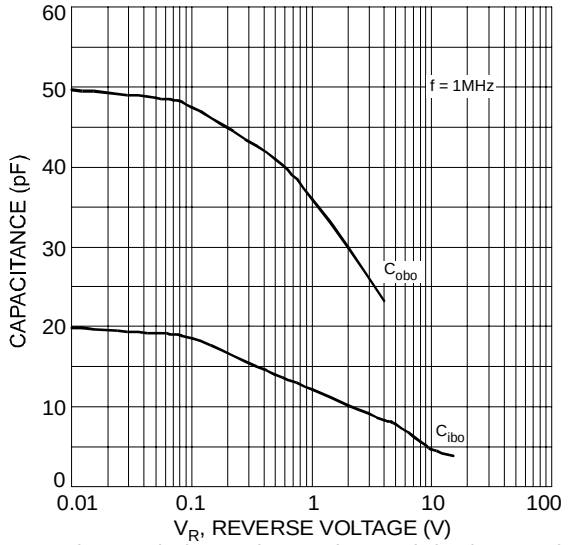


Fig. 6 Typical Capacitance Characteristics (Q1, PNP)

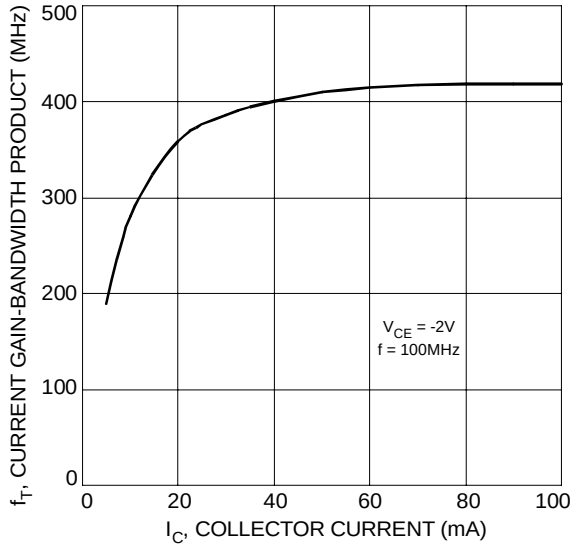


Fig. 7 Typical Gain-Bandwidth Product vs. Emitter Current (Q1, PNP)

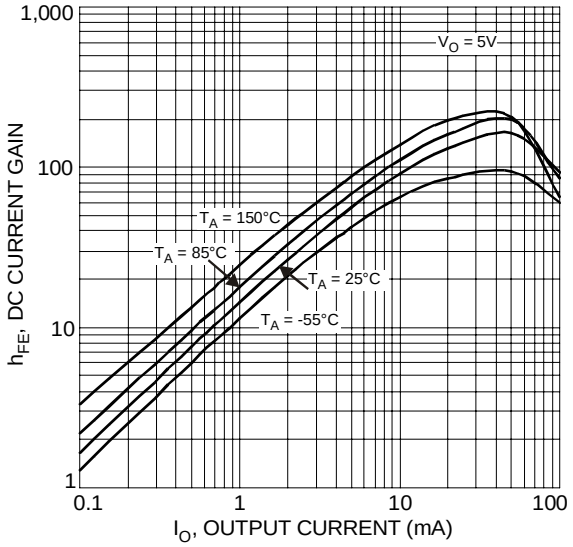


Fig. 8 Typical DC Current Gain vs. Output Current (Q2, NPN PBT)

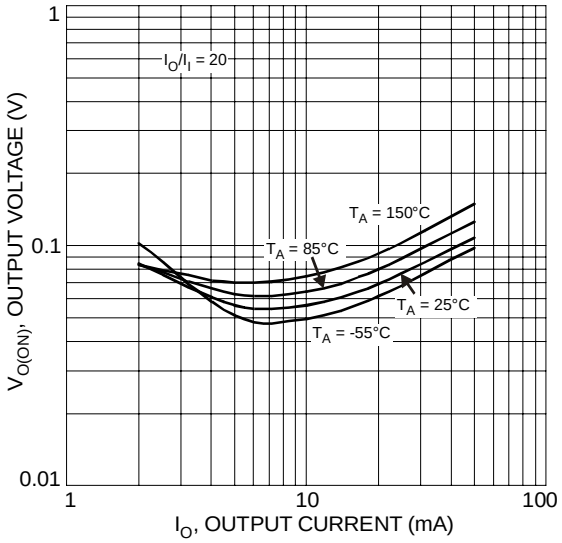


Fig. 9 Typical Output Voltage vs. Output Current (Q2, NPN PBT)

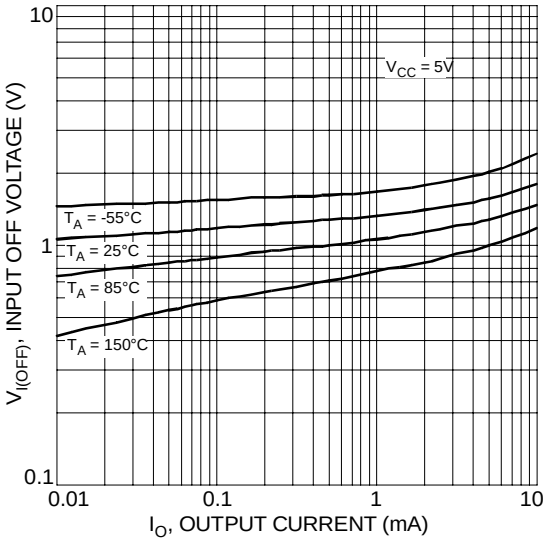


Fig. 10 Typical Input Off Voltage vs. Output Current (Q2, NPN PBT)

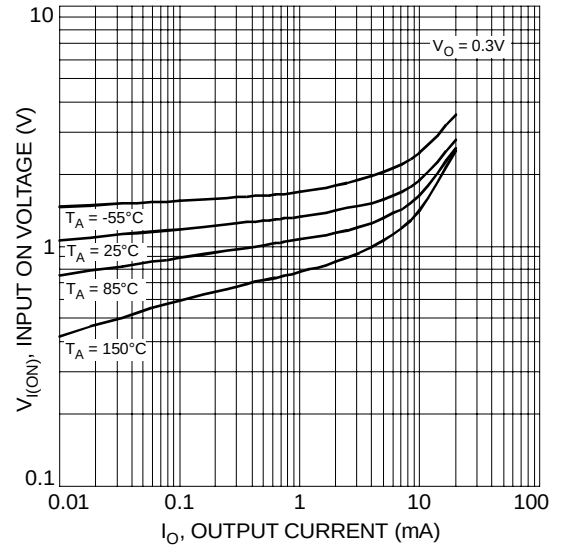


Fig. 11 Typical Input On Voltage vs. Output Current (Q2, NPN PBT)

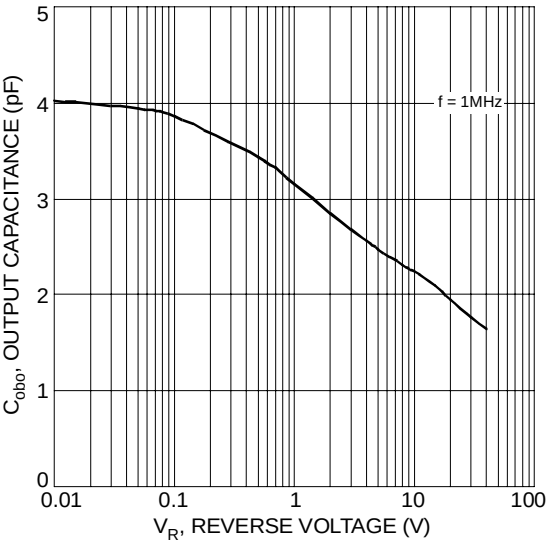


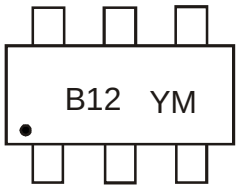
Fig. 12 Typical Output Capacitance Characteristics (Q2, NPN PBT)

Ordering Information (Note 6)

Device	Packaging	Shipping
EMF21-7	SOT-563	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



B12 = Product Type Marking Code
YM = Date Code Marking
Y = Year ex: U = 2007
M = Month ex: 9 = September

Date Code Key

Year	2007	2008	2009	2010	2011	2012
Code	U	V	W	X	Y	Z

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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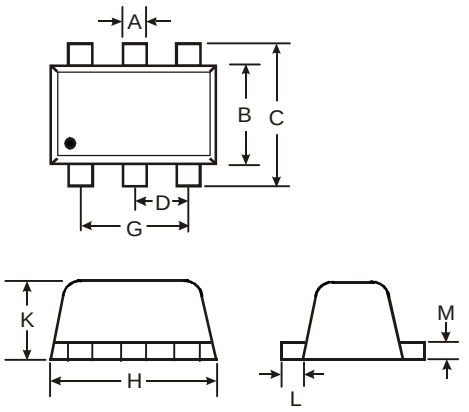
Package Outline Dimensions



SOT-563			
Dim	**Min**	**Max**	**Typ**
A	0.15	0.30	0.25
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	0.50	-	-
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.56	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			