Elektronische Bauelemente

EMZ1

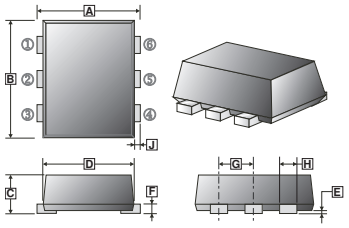
0.15 W, ±150 mA, ±60 V
Silicon Epitaxial Planar
Power Management (Dual Transistors)

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

SOT-563

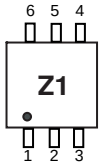
FEATURES

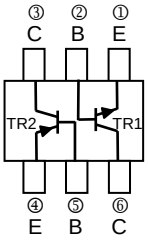
- 2SA1037AK and 2SC2412K are housed independently in a package.
- Transistor elements independent, eliminating interference.
- Mounting cost and area can be cut in half.



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.50	1.70	F	0.09	0.16
B	1.50	1.70	G	0.45	0.55
C	0.525	0.60	H	0.17	0.27
D	1.10	1.30	J	0.10	0.30
E	-	0.05			

MARKING AND EQUIVALENT CIRCUIT





TR1 ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current – Continuous	I_C	0.15	A
Collector Power Dissipation	P_C	0.15	W
Junction & Storage Temperature	T_J, T_{STG}	150, -55~150	℃

TR1 NPN ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	60	-	-	V	I_C=50μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50	-	-	V	I_C=1mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	7	-	-	V	I_E=50μA, I_C=0
Collector Cut-Off Current	I_{CBO}	-	-	0.1	μA	V_{CB}=60V, I_E=0
Emitter Cut-Off Current	I_{EBO}	-	-	0.1	μA	V_{EB}=7V, I_C=0
DC Current Gain	h_{FE}	120	-	560		V_{CE}=6V, I_C=1mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	I_C=50mA, I_B=5mA
Transition Frequency	f_T	-	180	-	MHz	V_{CE}=12V, I_C=2mA, f=100MHz
Collector Output Capacitance	C_{ob}	-	2.0	3.5	pF	V_{CB}=12V, I_E=0, f=1MHz

TR2 ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-6	V
Collector Current – Continuous	I_C	-0.15	A
Collector Power Dissipation	P_C	0.15	W
Junction & Storage Temperature	T_J, T_{STG}	150, -55~150	℃

TR2 PNP ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-60	-	-	V	I_C=-50μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-50	-	-	V	I_C=-1mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	-	-	V	I_E=-50μA, I_C=0
Collector Cut-Off Current	I_{CBO}	-	-	-0.1	μA	V_{CB}=-60V, I_E=0
Emitter Cut-Off Current	I_{EBO}	-	-	-0.1	μA	V_{EB}=-6V, I_C=0
DC Current Gain	h_{FE}	120	-	560		V_{CE}=-6V, I_C=-1mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	-0.5	V	I_C=-50mA, I_B=-5mA
Transition Frequency	f_T	-	140	-	MHz	V_{CE}=-12V, I_C=-2mA, f=100MHz
Collector Output Capacitance	C_{ob}	-	-	5	pF	V_{CB}=-12V, I_E=0, f=1MHz

TYPICAL CHARACTERISTICS

TR1 (NPN)

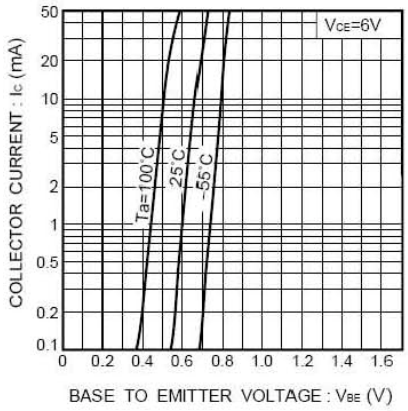


Fig.1 Grounded emitter propagation characteristics

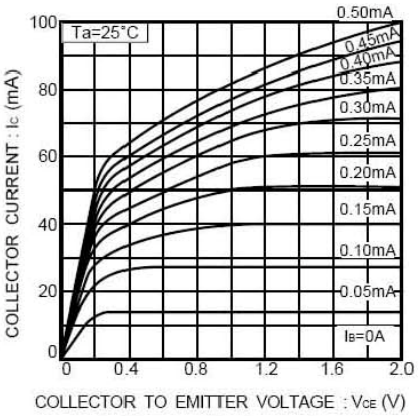


Fig.2 Grounded emitter output characteristics (I)

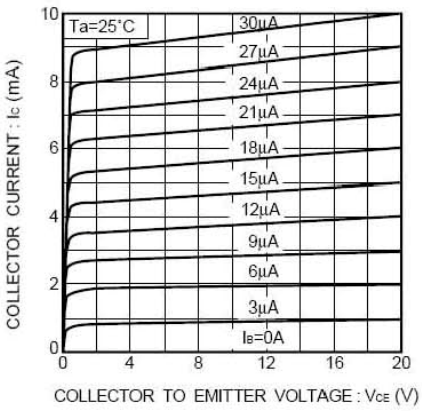


Fig.3 Grounded emitter output characteristics (II)

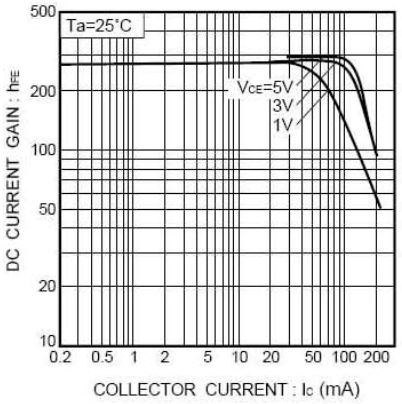


Fig.4 DC current gain vs. collector current (I)

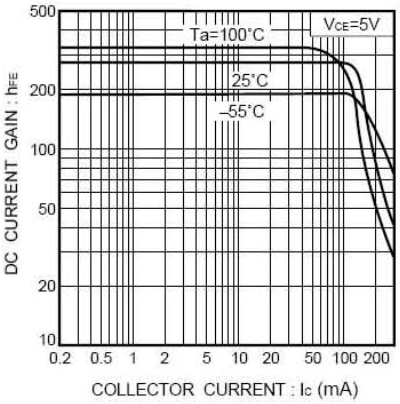


Fig.5 DC current gain vs. collector current (II)

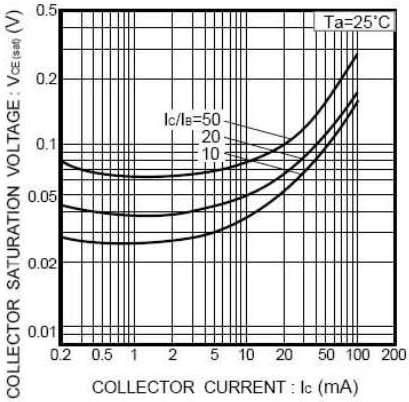


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

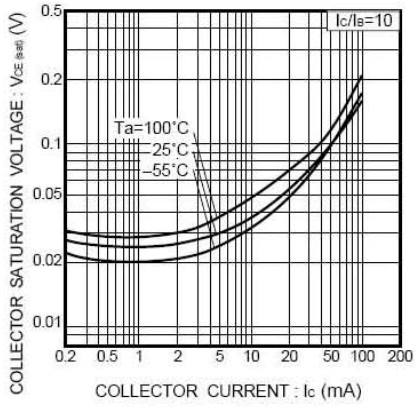


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

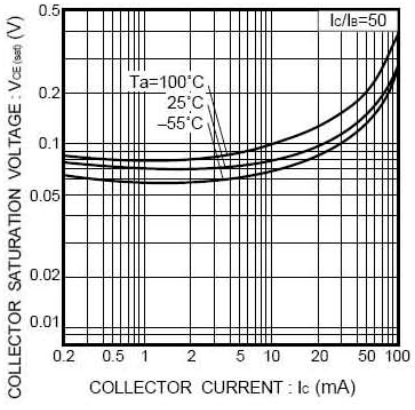


Fig.8 Collector-emitter saturation voltage vs. collector current (III)

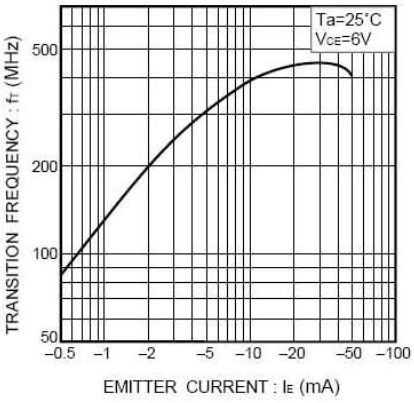


Fig.9 Gain bandwidth product vs. emitter current

TYPICAL CHARACTERISTICS (cont'd)

TR1 (NPN)

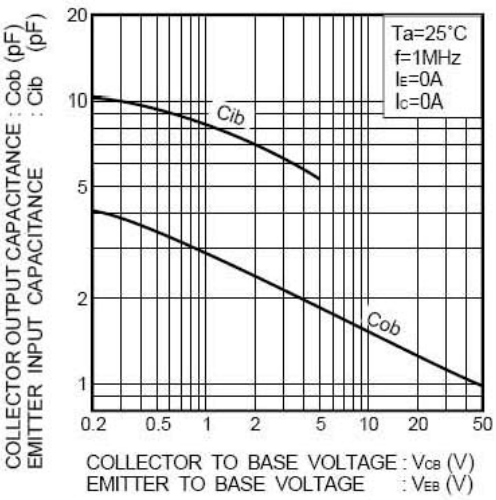


Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

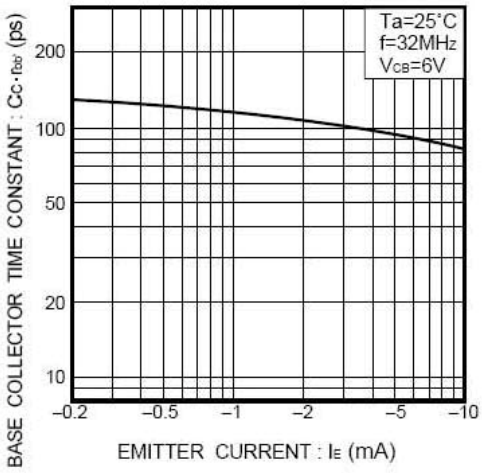


Fig.11 Base-collector time constant vs. emitter current

TYPICAL CHARACTERISTICS

TR2 (PNP)

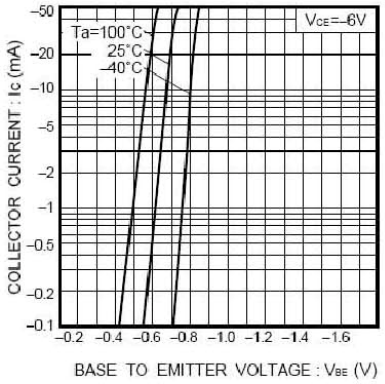


Fig.12 Grounded emitter propagation characteristics

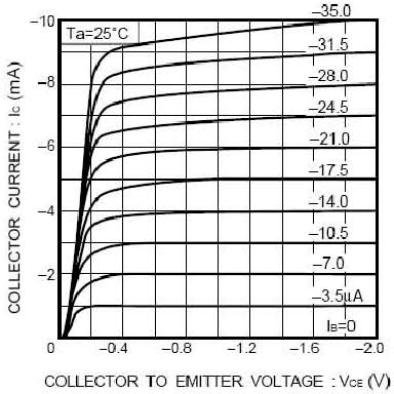


Fig.13 Grounded emitter output characteristics (I)

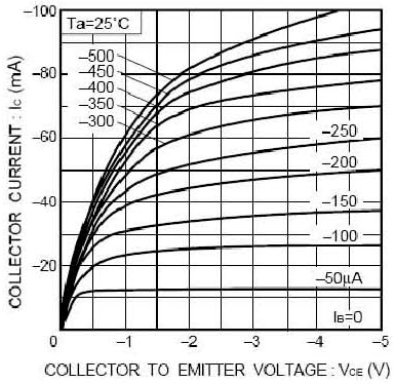


Fig.14 Grounded emitter output characteristics (II)

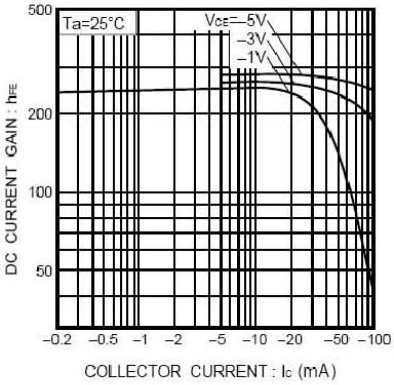


Fig.15 DC current gain vs. collector current (I)

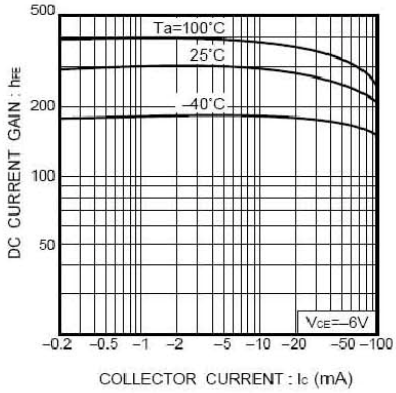


Fig.16 DC current gain vs. collector current (II)

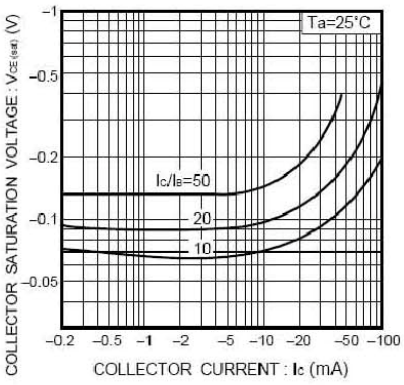


Fig.17 Collector-emitter saturation voltage vs. collector current (I)

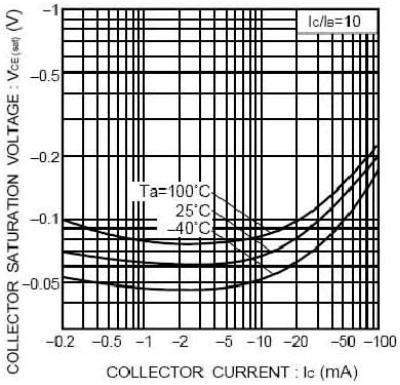


Fig.18 Collector-emitter saturation voltage vs. collector current (II)

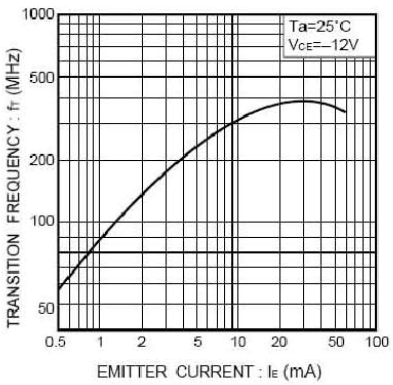


Fig.19 Gain bandwidth product vs. emitter current

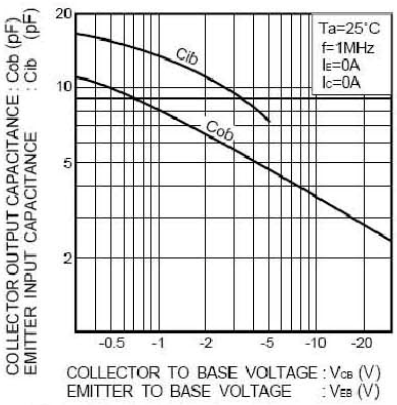


Fig.20 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage