

**Features**

- 2SC2412 and 2SA1037 are Housed Independently in a Package
- Mounting Cost and Area can be Cut in Half
- Transistor Elements Independent, Eliminating Interference
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

**Maximum Ratings @ 25°C Unless Otherwise Specified**

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C

**NPN Transistor**

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	7	V
Continuous Collector Current	$I_C$	150	mA
Power Dissipation	$P_D$	150	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	°C/W

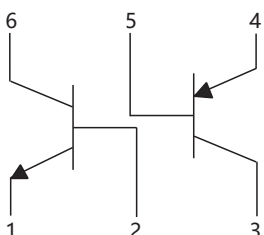
**PNP Transistor**

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-60	V
Collector-Emitter Voltage	$V_{CEO}$	-50	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Continuous Collector Current	$I_C$	-150	mA
Power Dissipation	$P_D$	150	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	°C/W

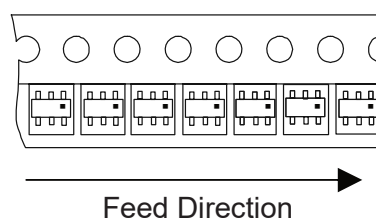
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Marking: Z1**

**Internal Structure**

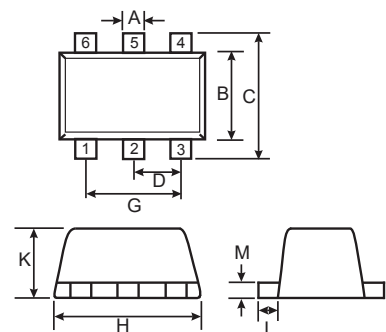


Special packing as below



**Dual Transistors**

**SOT-563**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.006	0.011	0.15	0.30	
B	0.043	0.051	1.10	1.30	
C	0.059	0.067	1.50	1.70	
D	0.020		0.50		TYP.
G	0.035	0.043	0.90	1.10	
H	0.059	0.067	1.50	1.70	
K	0.022	0.026	0.55	0.65	
L	0.004	0.011	0.10	0.30	
M	0.004	0.007	0.10	0.18	

**Electrical Characteristics @  $T_A=25^\circ\text{C}$  Unless Otherwise Specified**
**NPN Transistor**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	60			V	$I_C=50\mu\text{A}$ , $I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50			V	$I_C=1\text{mA}$ , $I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	7			V	$I_E=50\mu\text{A}$ , $I_C=0$
Collector Cutoff Current	$I_{CBO}$			100	nA	$V_{CB}=60\text{V}$ , $I_E=0$
Emitter Cutoff Current	$I_{EBO}$			100	nA	$V_{EB}=7\text{V}$ , $I_C=0$
DC Current Gain	$h_{FE}$	120		560		$V_{CE}=6\text{V}$ , $I_C=1\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.4	V	$I_C=50\text{mA}$ , $I_B=5\text{mA}$
Transition Frequency	$f_T$		180		MHz	$V_{CE}=12\text{V}$ , $I_C=2\text{mA}$ , $f=100\text{MHz}$
Output Capacitance	$C_{ob}$		2	3.5	pF	$V_{CB}=12\text{V}$ , $I_E=0$ , $f=1\text{MHz}$

**PNP Transistor**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-60			V	$I_C=-50\mu\text{A}$ , $I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-50			V	$I_C=-1\text{mA}$ , $I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6			V	$I_E=-50\mu\text{A}$ , $I_C=0$
Collector Cutoff Current	$I_{CBO}$			-100	nA	$V_{CB}=-60\text{V}$ , $I_E=0$
Emitter Cutoff Current	$I_{EBO}$			-100	nA	$V_{EB}=-6\text{V}$ , $I_C=0$
DC Current Gain	$h_{FE}$	120		560		$V_{CE}=-6\text{V}$ , $I_C=-1\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.50	V	$I_C=-50\text{mA}$ , $I_B=-5\text{mA}$
Transition Frequency	$f_T$		140		MHz	$V_{CE}=-12\text{V}$ , $I_C=-2\text{mA}$ , $f=100\text{MHz}$
Output Capacitance	$C_{ob}$			5	pF	$V_{CB}=-12\text{V}$ , $I_E=0$ , $f=1\text{MHz}$

**Curve Characteristics(NPN)**

Fig. 1 - Static Characteristics

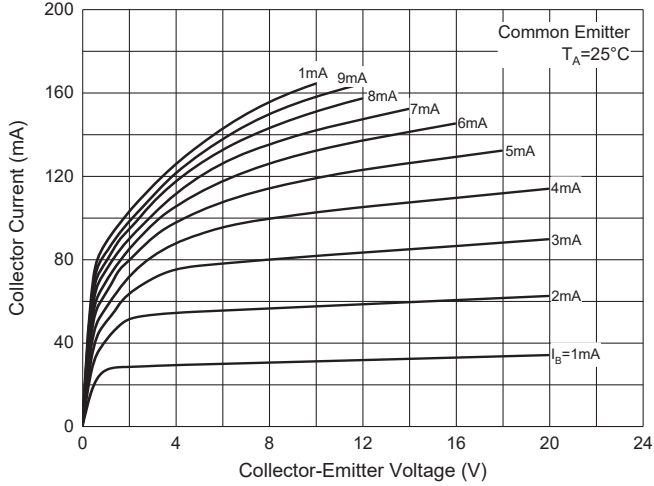


Fig. 2 - DC Current Gain Characteristics

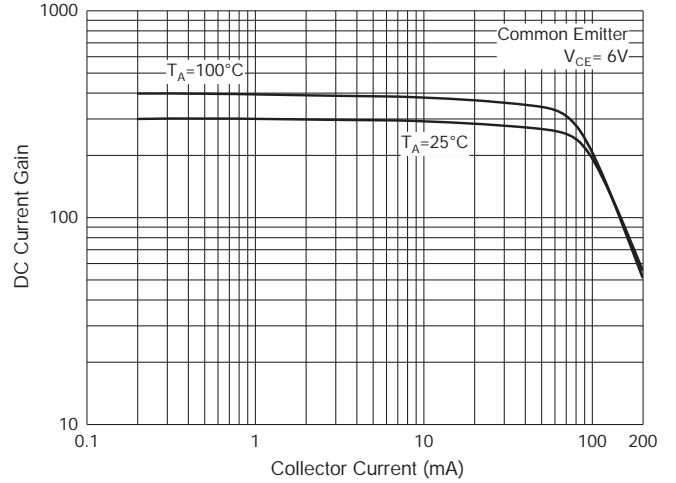


Fig. 3 - Collector-Emmitter Saturation Voltage Characteristics

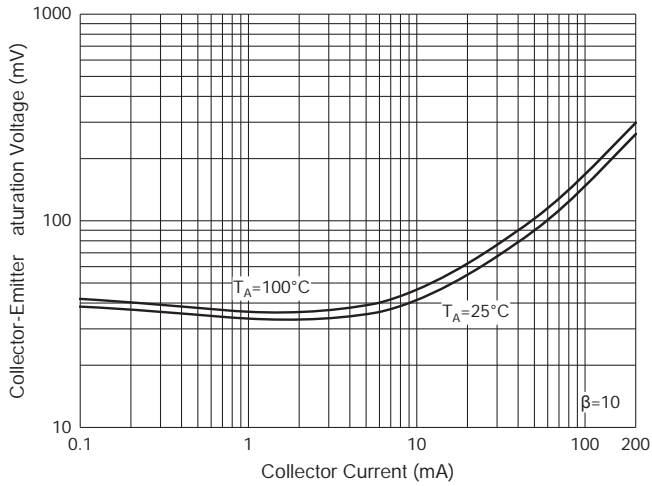


Fig. 4 - Base-Emmitter Voltage Characteristics

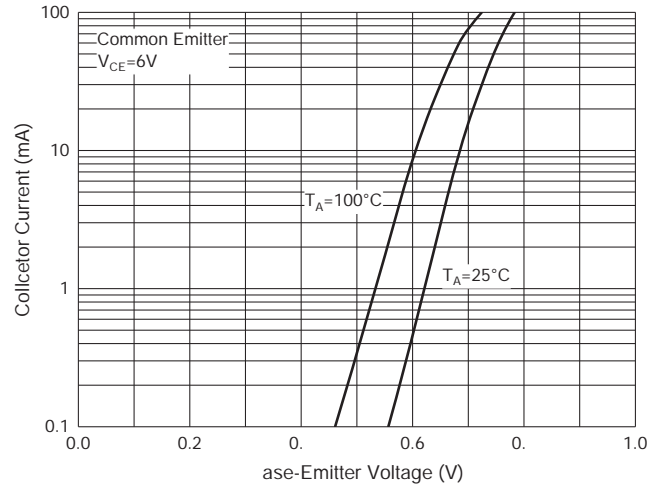
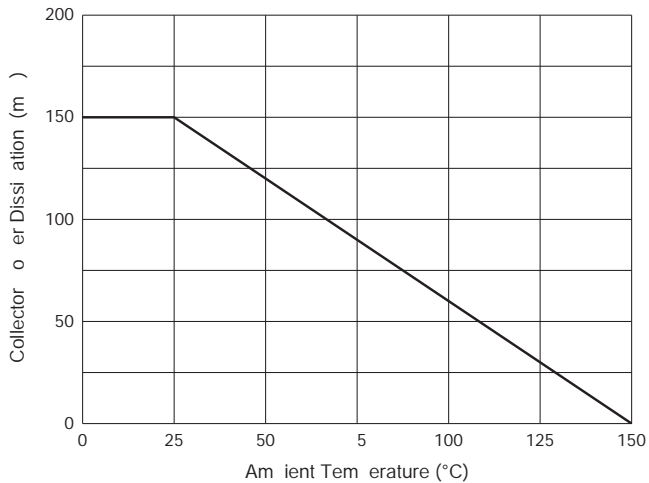


Fig. 5 - Collector Power Derating Curve



Curve Characteristics(PNP)

Fig. 6 - Static Characteristics

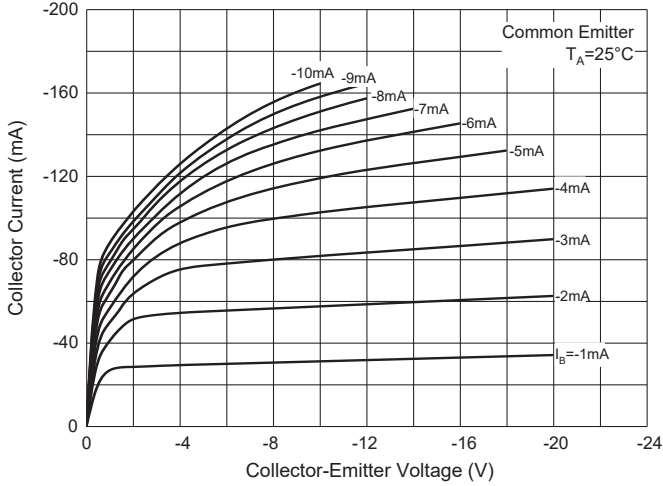


Fig. 7 - DC Current Gain Characteristics

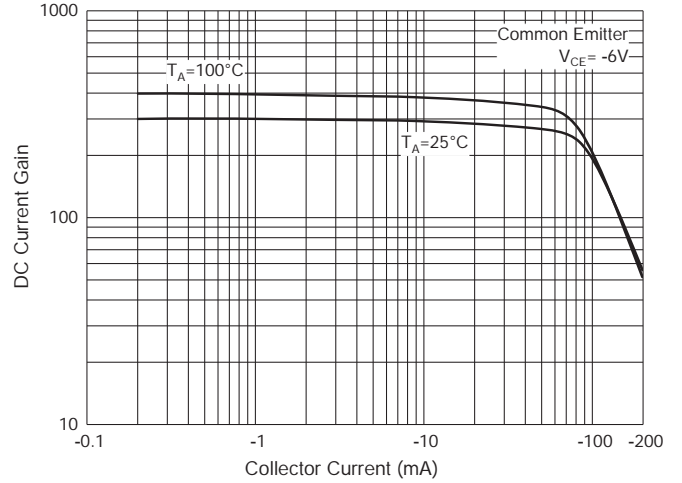


Fig. 8 - Collector-Emitter Saturation Voltage Characteristics

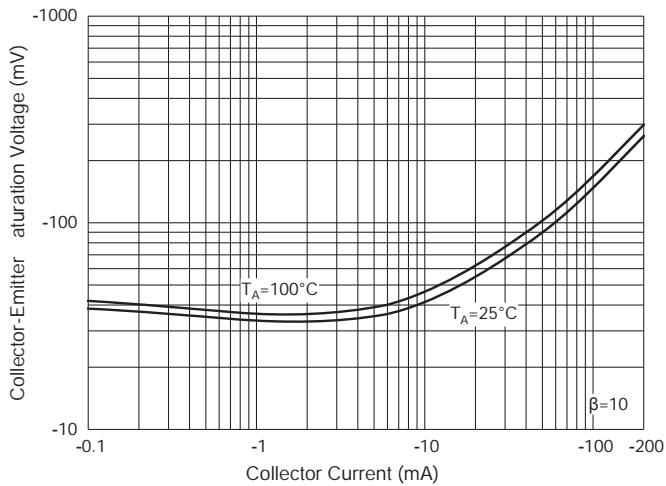


Fig. 9 - Base-Emitter Voltage Characteristics

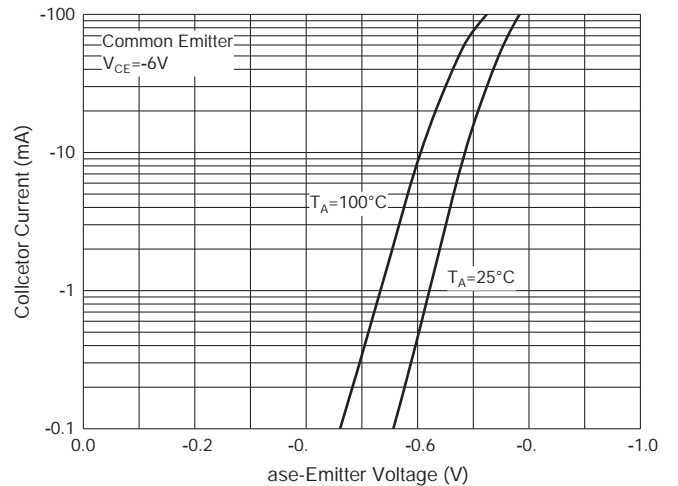
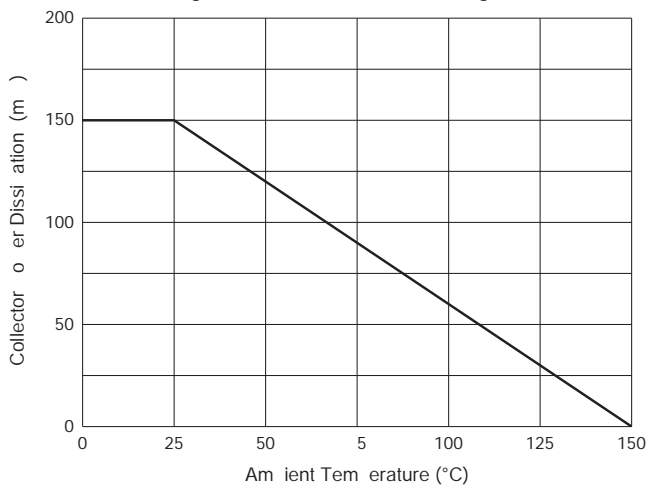


Fig. 10 - Collector Power Derating Curve



## Ordering Information

Device	Packing
EMZ1-TPQ2	Tape&Reel: 3Kpcs/Reel

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