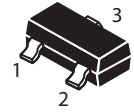
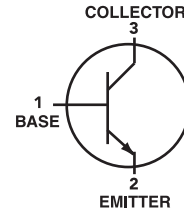


### Silicon NPN Transistors

 Lead(Pb)-Free



**SOT-23**

#### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	50	Vdc
Collector-Base Voltage	$V_{CBO}$	60	Vdc
Emitter-Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current-Continuous	$I_C$	150	mAdc

#### THERMAL CHARACTERISTICS

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (1) $T_A=25^{\circ}\text{C}$	$P_D$	150	mW
Derate above $25^{\circ}\text{C}$		1.2	$\text{mW}/^{\circ}\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C}/\text{W}$
Junction and Storage, Temperature	$T_J, T_{stg}$	-55 to +150	$^{\circ}\text{C}$

#### DEVICE MARKING

2SC2712Q=LO, 2SC2712Y=LY, 2SC2712GR=LG, 2SC2712BL=LL

#### ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
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#### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ( $I_C= 1.0\text{mAdc}, I_E=0$ )	$V_{(BR)CEO}$	50	-	Vdc
Collector-Base Breakdown Voltage ( $I_C= 100 \mu\text{A}, I_B=0$ )	$V_{(BR)CBO}$	60	-	Vdc
Emitter-Base Breakdown Voltage ( $I_E= 100 \mu\text{Adc}, I_C=0$ )	$V_{(BR)EBO}$	5.0	-	Vdc
Collector Cutoff Current ( $V_{CB}= 50\text{Vdc}, I_E= 0$ )	$I_{CEO}$	-	0.1	$\mu\text{Adc}$
Collector Cutoff Current ( $V_{CB}= 60\text{Vdc}, I_E=0$ )	$I_{CBO}$	-	0.1	$\mu\text{Adc}$
Emitter Cutoff Current ( $V_{EB}=5.0\text{Vdc}, I_C=0$ )	$I_{EBO}$	-	0.1	$\mu\text{Adc}$

1.FR-5=1.0 x 0.75 x 0.062 in

# 2SC2712



## ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ unless otherwise noted) (Continued)

Characteristics	Symbol	Min	Typ	Max	Unit
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### ON CHARACTERISTICS

DC Current Gain ( $I_C=2\text{ mAdc}, V_{CE}=6.0\text{ Vdc}$ )	$h_{FE}$	70	-	700	-
Collector-Emitter Saturation Voltage ( $I_C=100\text{ mAdc}, I_B=10\text{ mAdc}$ )	$V_{CE(sat)}$	-	0.1	0.25	Vdc
Output Capacitance ( $V_{CB}=10\text{ Vdc}, I_E=0\text{ A}, f=1\text{ MHz}$ )	$C_{ob}$	-	2.0	3.5	PF
Transition Frequency ( $I_C=1\text{ mAdc}, V_{CE}=10\text{ Vdc}$ )	$f_T$	80	-	-	MHz

### CLASSIFICATION OF $h_{FE}$

Rank	O	Y	GR	BL
Range	70-140	120-240	200-400	350-700
Marking	LO	LY	LG	LL

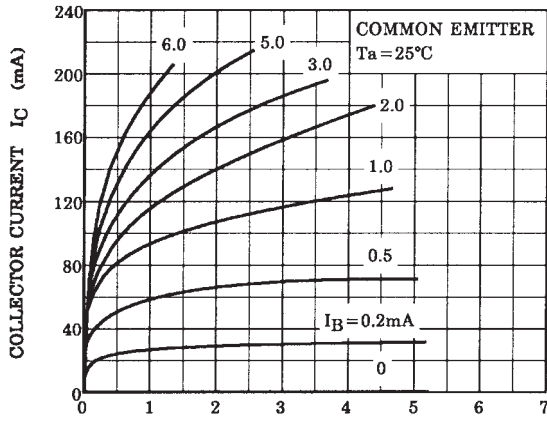


FIG1. COLLECTOR-EMITTER VOLTAGE V<sub>CE</sub> (V)

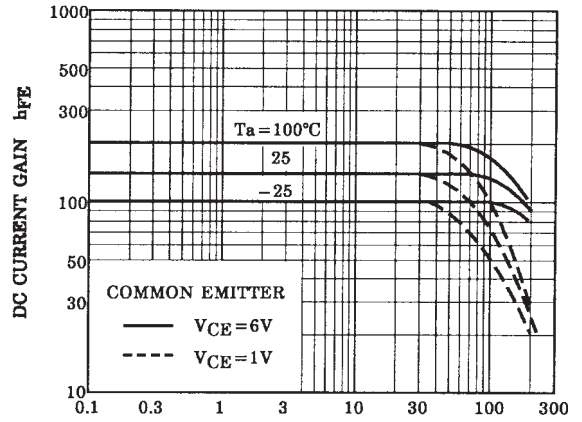


FIG2. COLLECTOR CURRENT I<sub>C</sub> (mA)

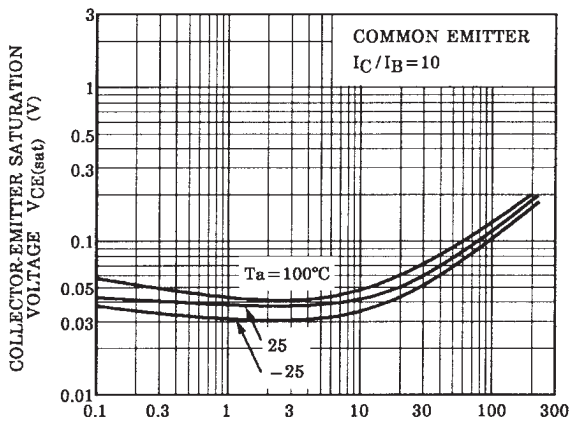


FIG3. COLLECTOR CURRENT I<sub>C</sub> (mA)

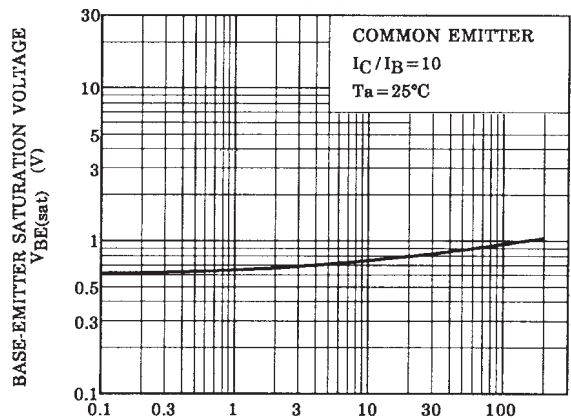


FIG4. COLLECTOR CURRENT I<sub>C</sub> (mA)

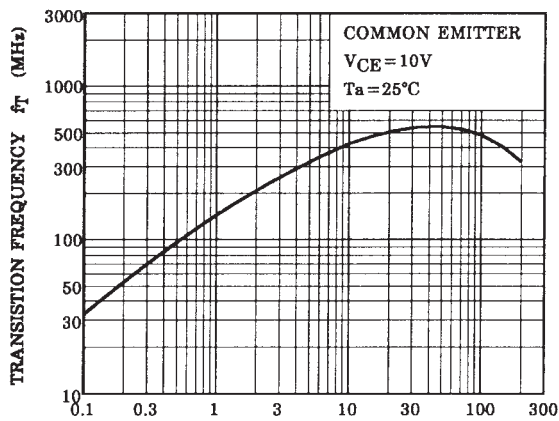


FIG5. COLLECTOR CURRENT I<sub>C</sub> (mA)

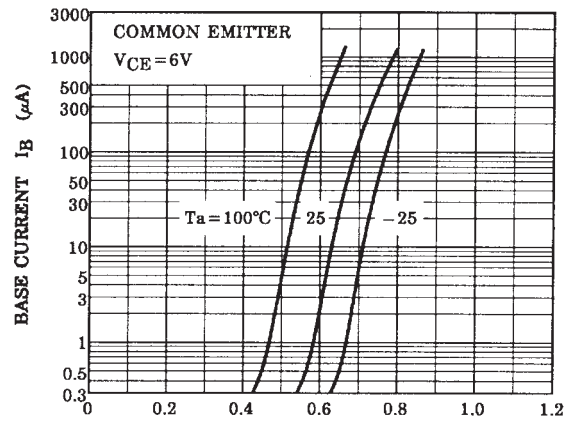


FIG6. BASE-EMITTER VOLTAGE V<sub>BE</sub> (V)

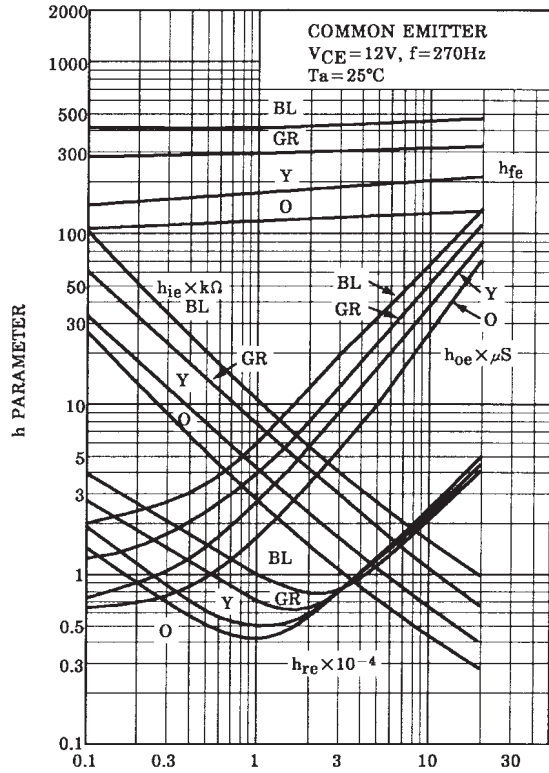


FIG7. COLLECTOR CURRENT  $I_C$  (mA)

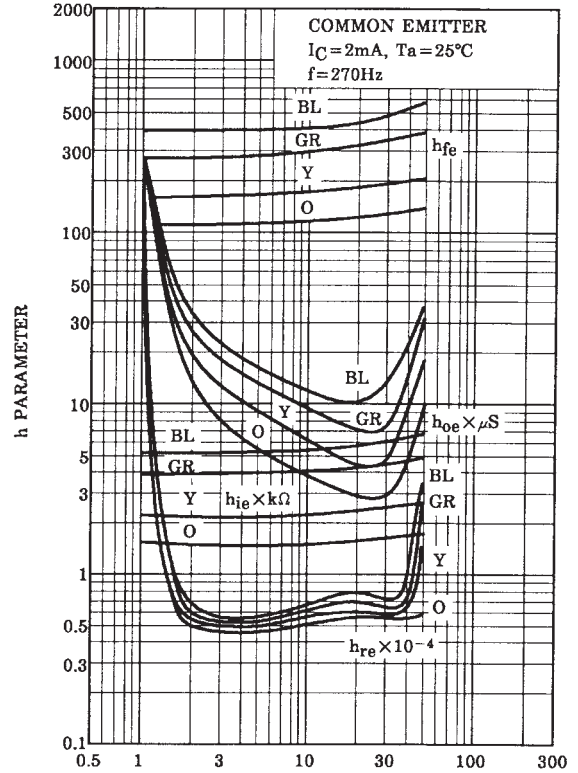


FIG8. COLLECTOR-EMITTER VOLTAGE  $V_{CE}$  (V)

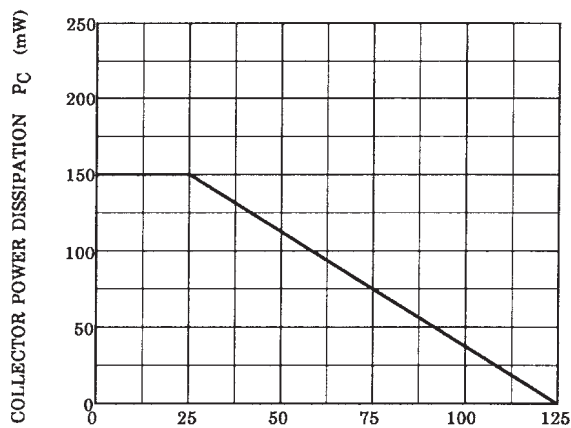
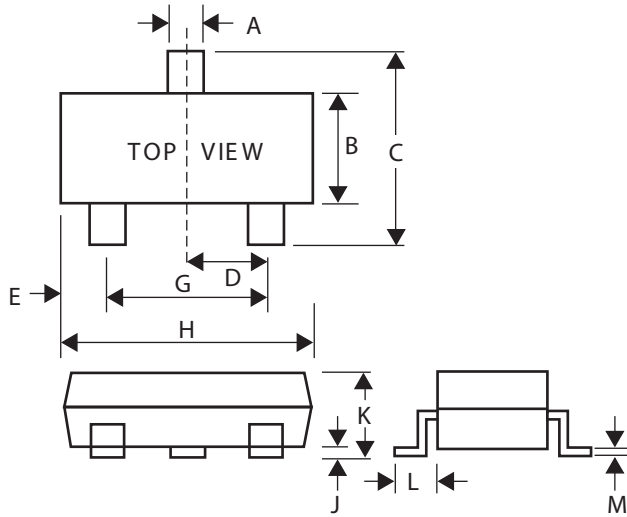


FIG9. AMBIENT TEMPERATURE  $T_a$  ( $^\circ C$ )

SOT-23 Package Outline Dimensions

Unit:mm



Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25