

### NPN Silicon

- We declare that the material of product compliance with RoHS requirements.  
**Pb-Free package is available**  
 RoHS product for packing code suffix "G"  
 Halogen free product for packing code suffix "H"  
**Moisture Sensitivity Level 1**

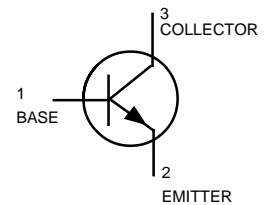
### ORDERING INFORMATION

Device	Marking	Shipping
2SC2412KQLT1	BQ	3000 Tape & Reel
2SC2412KRLT1	BR	3000 Tape & Reel
2SC2412KSLT1	G1F	3000 Tape & Reel



### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CEO}$	50	V
Collector-Base Voltage	$V_{CBO}$	60	V
Emitter-Base Voltage	$V_{EBO}$	7.0	V
Collector Current — Continuous	$I_C$	150	mA
Collector power dissipation	$P_C$	0.2	W
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 ~ +150	°C



### DEVICE MARKING

2SC2412KQLT1=BQ    2SC2412KRLT1=BR    2SC2412KSLT1=G1F

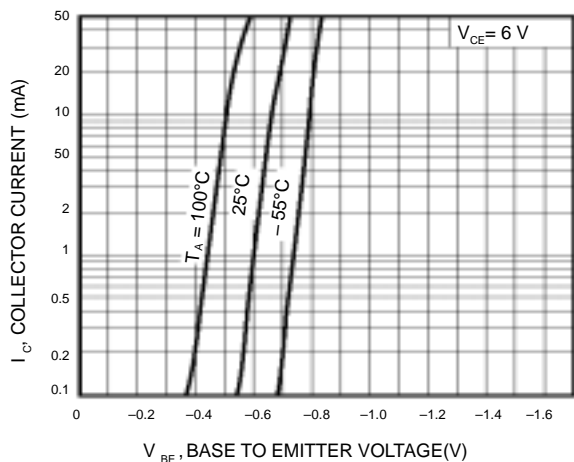
### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage ( $I_C = 1\text{ mA}$ )	$V_{(BR)CEO}$	50	—	—	V
Emitter-Base Breakdown Voltage ( $I_E = 50\ \mu\text{A}$ )	$V_{(BR)EBO}$	7	—	—	V
Collector-Base Breakdown Voltage ( $I_C = 50\ \mu\text{A}$ )	$V_{(BR)CBO}$	60	—	—	V
Collector Cutoff Current ( $V_{CB} = 60\text{ V}$ )	$I_{CBO}$	—	—	0.1	$\mu\text{A}$
Emitter cutoff current ( $V_{EB} = 7\text{ V}$ )	$I_{EBO}$	—	—	0.1	$\mu\text{A}$
Collector-emitter saturation voltage ( $I_C / I_B = 50\text{ mA} / 5\text{ mA}$ )	$V_{CE(sat)}$	—	—	0.4	V
DC current transfer ratio ( $V_{CE} = 6\text{ V}, I_C = 1\text{ mA}$ )	$h_{FE}$	120	—	560	—
Transition frequency ( $V_{CE} = 12\text{ V}, I_E = -2\text{ mA}, f = 30\text{ MHz}$ )	$f_T$	—	180	—	MHz
Output capacitance ( $V_{CB} = 12\text{ V}, I_E = 0\text{ A}, f = 1\text{ MHz}$ )	$C_{ob}$	—	2.0	3.5	pF

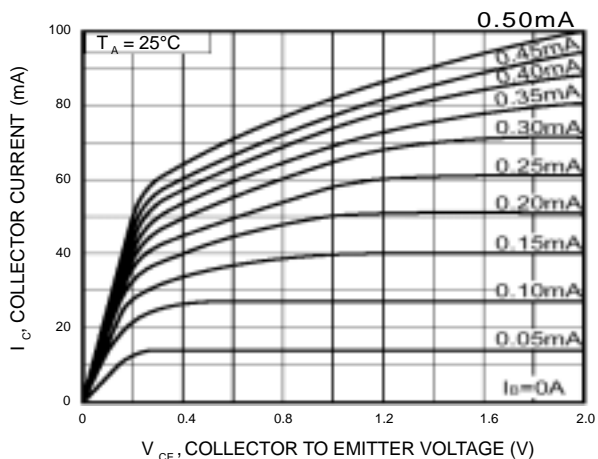
### $h_{FE}$ values are classified as follows:

*	Q	R	S
$h_{FE}$	120~270	180~390	270~560

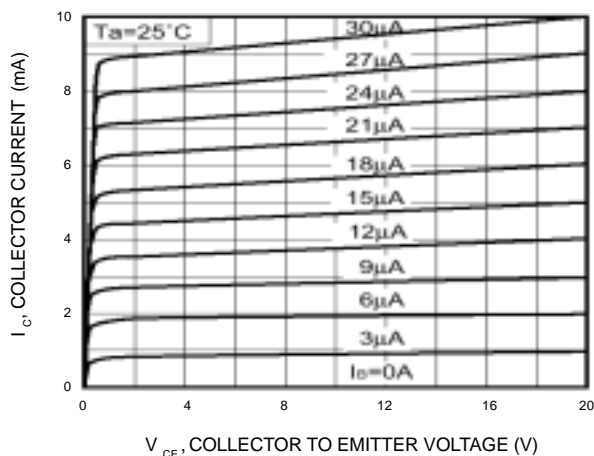
**Fig.1** Grounded emitter propagation characteristics



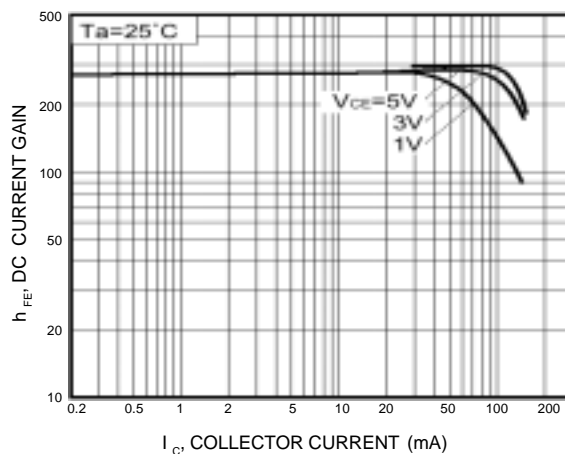
**Fig.2** Grounded emitter output characteristics(I)



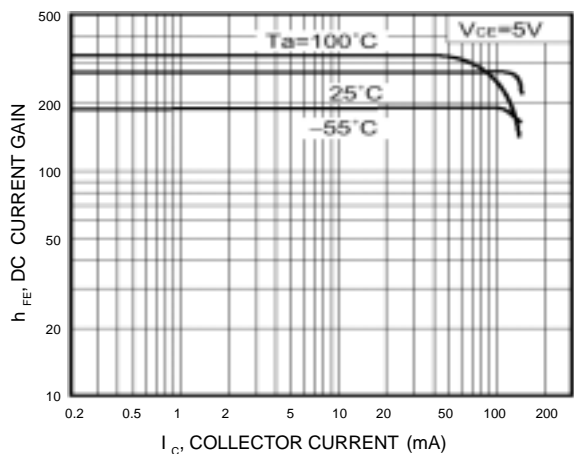
**Fig.3** Grounded emitter output characteristics(II)



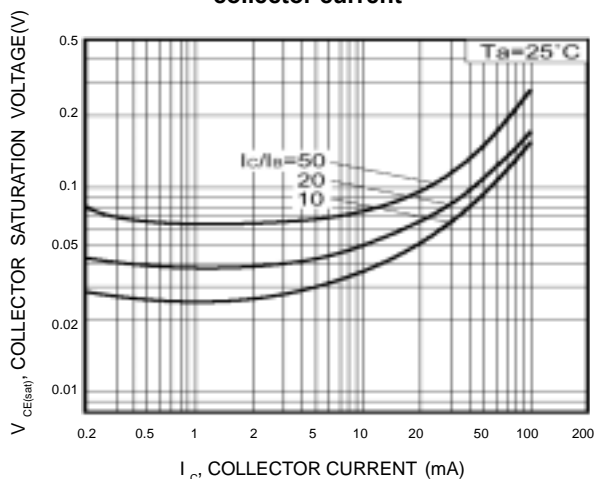
**Fig.4** DC current gain vs. collector current (I)



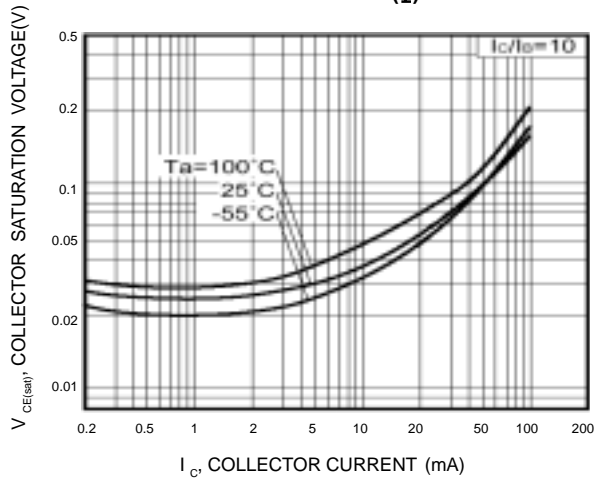
**Fig.5** DC current gain vs. collector current (II)



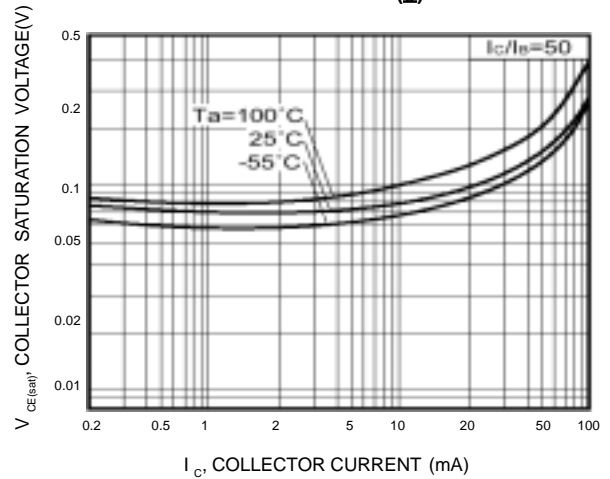
**Fig.6** Collector-emitter saturation voltage vs. collector current



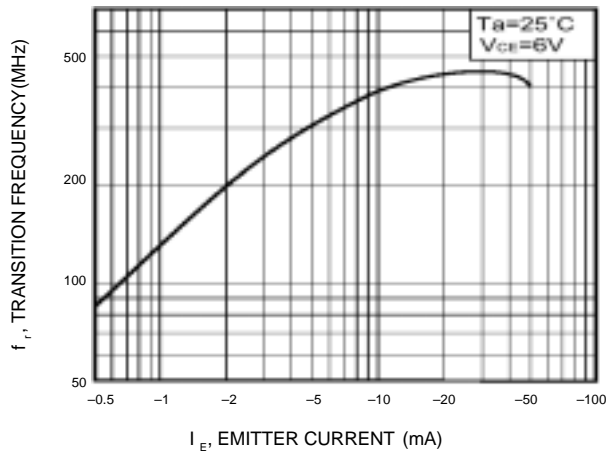
**Fig.7 Collector-emitter saturation voltage vs. collector current (I)**



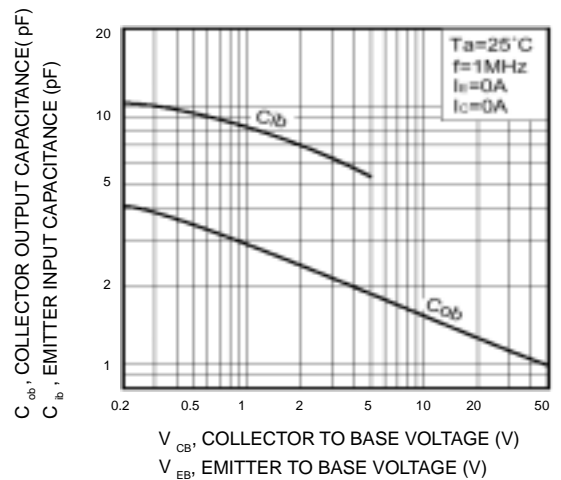
**Fig.8 Collector-emitter saturation voltage vs. collector current (II)**



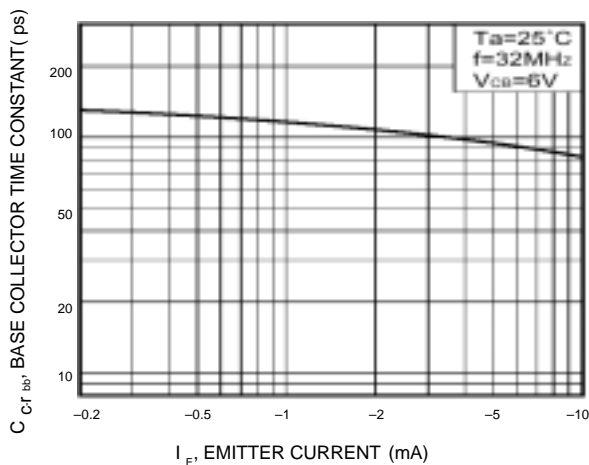
**Fig.9 Gain bandwidth product vs. emitter current**



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



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





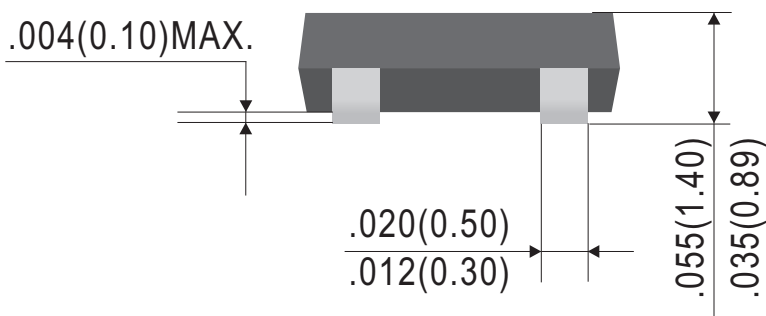
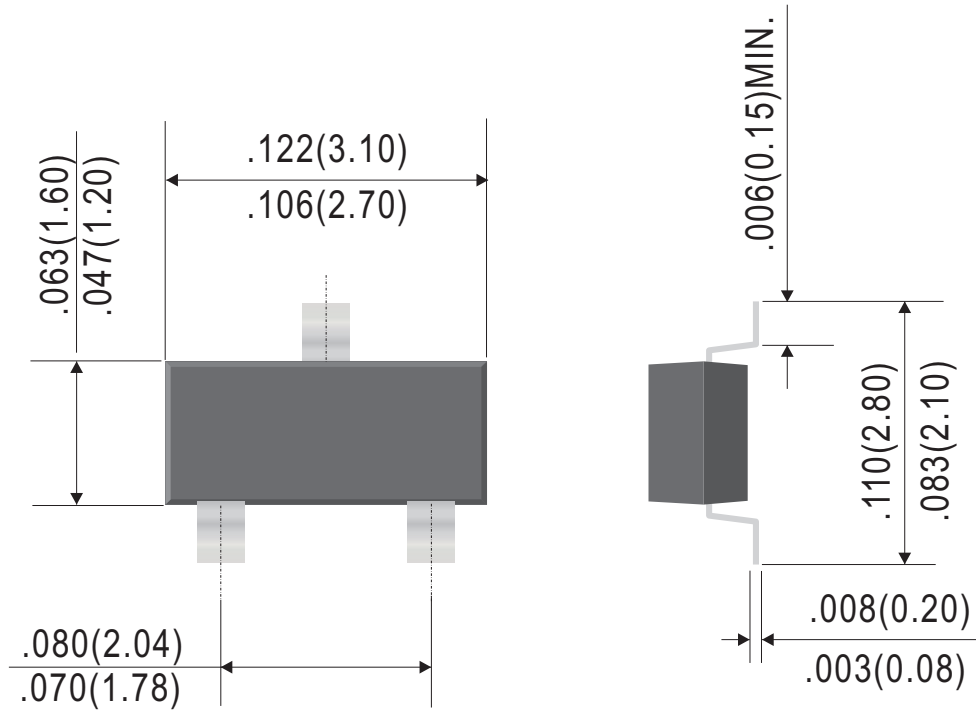
# WILLAS



## General Purpose Transistors

2SC2412KxLT1

### SOT-23



Dimensions in inches and (millimeters)

**Ordering Information:**

Device PN	Packing
2SC2412K x <sup>(2)</sup> LT1 G <sup>(1)</sup> -WS	Tape&Reel: 3 Kpcs/Reel

Note: (1) RoHS product for packing code suffix "G" ; Halogen free product for packing code suffix "H"

(2) CLASSIFICATION OF hFE RANK

**\*\*\*Disclaimer\*\*\***

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