

# General Purpose Transistors

Pb-Free package is available

## DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
L2SC1623SWT1G	L7	3000/Tape&Reel
L2SC1623SWT3G	L7	10000/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	V
Collector current-continuoun	$I_C$	150	mAdc

## THERMAL CHARATEERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (1) $T_A=25^{\circ}\text{C}$ Derate above $25^{\circ}\text{C}$	$P_D$	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C/W}$
Total Device Dissipation Alumina Substrate, (2) $T_A=25^{\circ}\text{C}$ Derate above $25^{\circ}\text{C}$	$P_D$	200	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$
Junction and Storage Temperature	$T_j, T_{stg}$	-55 to +150	$^{\circ}\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Collector Cutoff Current ( $V_{CB}=60\text{V}$ )	$I_{CBO}$	-	-	0.1	$\mu\text{A}$
Emitter Cutoff Current ( $V_{BE}=5\text{V}$ )	$I_{EBO}$	-	-	0.1	$\mu\text{A}$

### ON CHARACTERISTICS

DC Current Gain ( $I_C=1.0\text{mA}, V_{CE}=6\text{V}$ )	$h_{FE}$	270	-	560	
Collector-Emitter Saturation Voltage ( $I_C=100\text{mA}, I_B=10\text{mA}$ )	$V_{CE(sat)}$	-	0.15	0.3	V
Base-Emitter Saturation Voltage ( $I_C=100\text{mA}, I_B=10\text{mA}$ )	$V_{BE(sat)}$	-	0.86	1.0	V
Base -Emitter On Voltage ( $I_C=1\text{mA}, V_{CE}=6.0\text{V}$ )	$V_{BE}$	0.55	0.62	0.65	V

### SMALL-SIGNAL CHARACTERISTICS

Current-Gain-Bandwidth Product ( $V_{CE}=6.0\text{V}, I_E=-10\text{mA}$ )	$F_t$	-	250	-	MHz
Output Capacitance( $V_{CE}=6\text{V}, I_E=0, f=1.0\text{MHz}$ )	$C_{ob}$	-	3	-	Pf

L2SC1623SWT1G

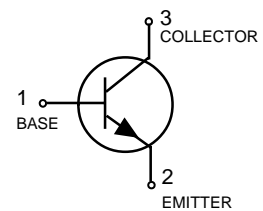
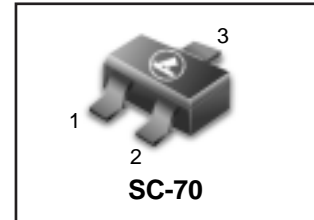


Fig.1 Grounded emitter propagation characteristics

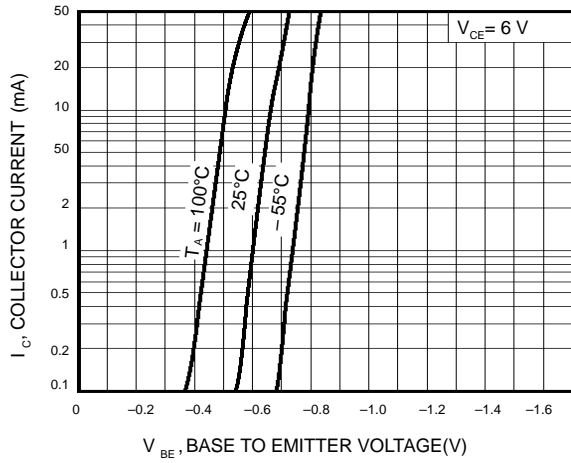


Fig.2 Grounded emitter output characteristics(I)

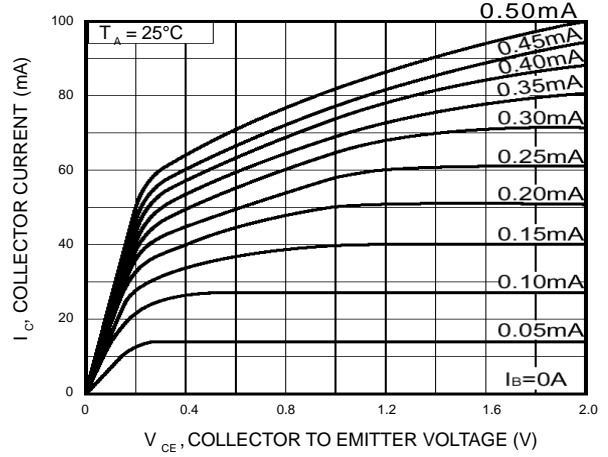


Fig.3 Grounded emitter output characteristics(II)

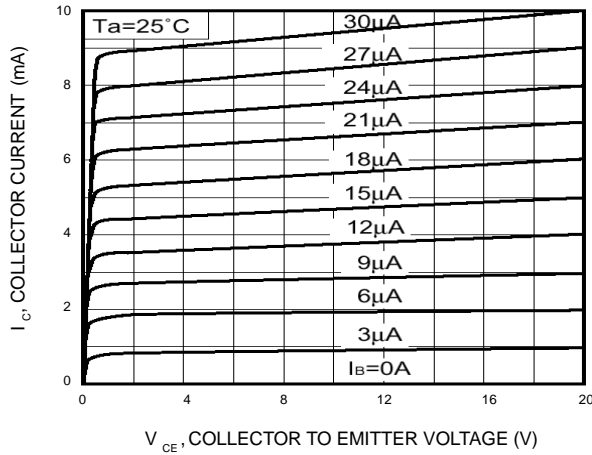


Fig.4 DC current gain vs. collector current (I)

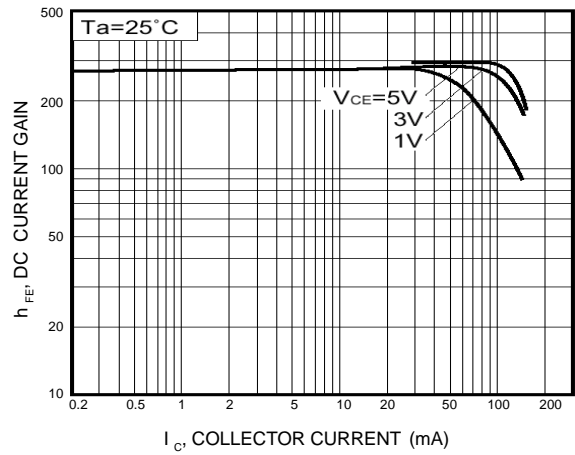


Fig.5 DC current gain vs. collector current (II)

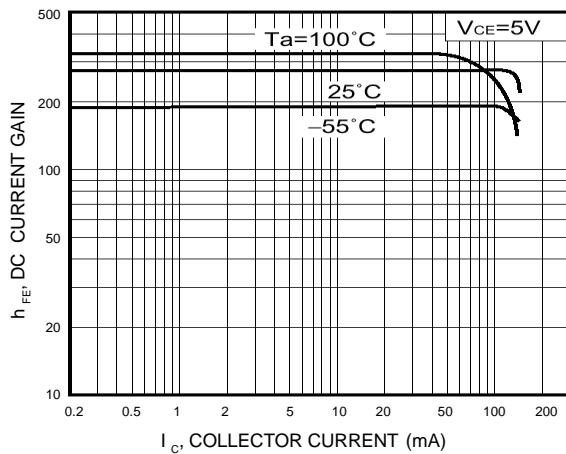
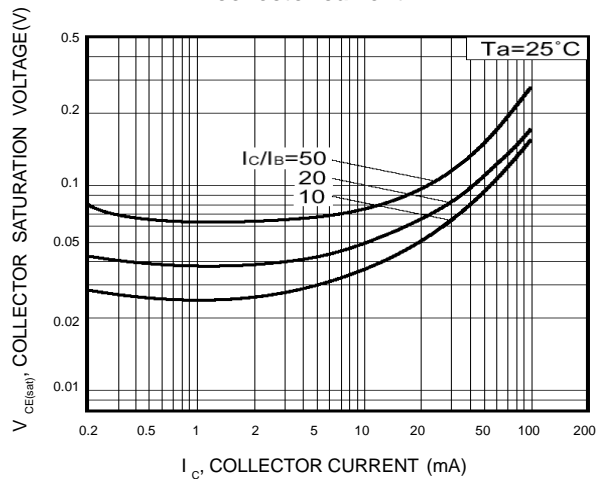
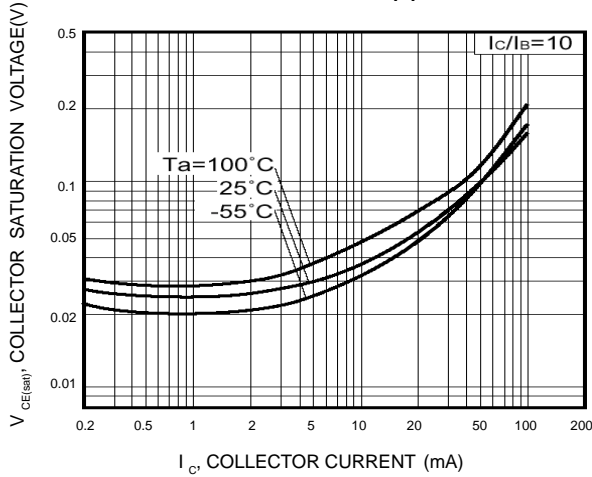


Fig.6 Collector-emitter saturation voltage vs. collector current

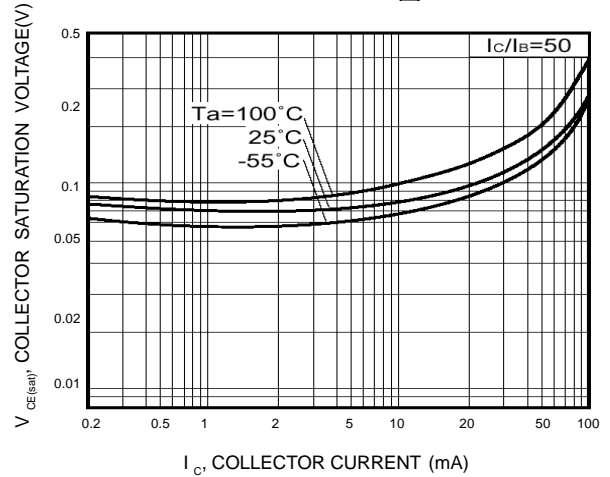


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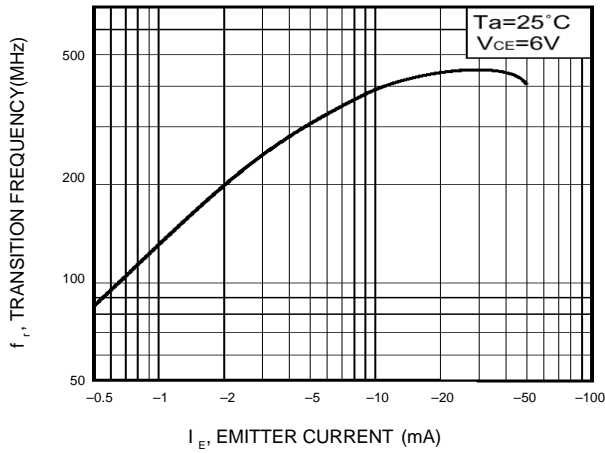
**Fig.7 Collector-emitter saturation voltage vs. collector current (I)**



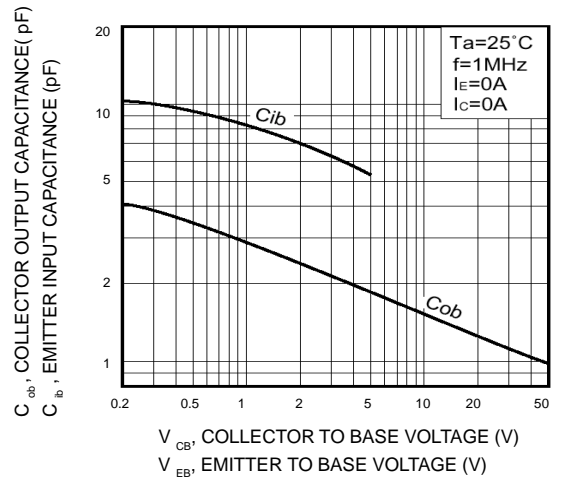
**Fig.8 Collector-emitter saturation voltage vs. collector current (II)**



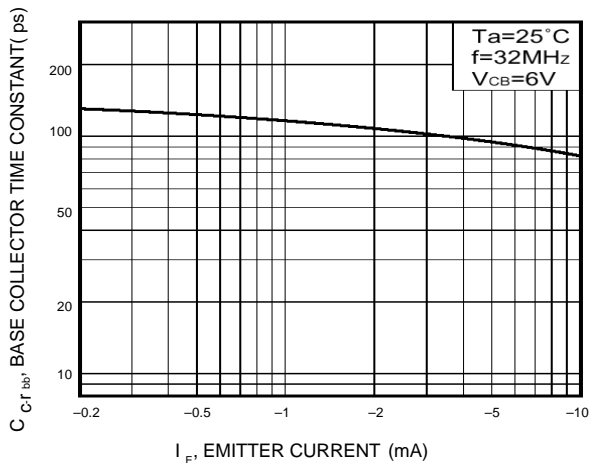
**Fig.9 Gain bandwidth product vs. emitter current**



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

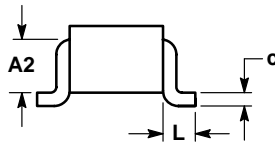
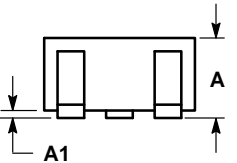
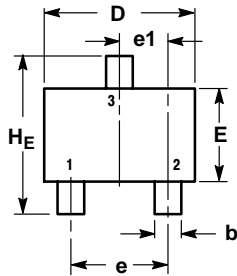


**Fig.11 Base-collector time constant vs. emitter current**



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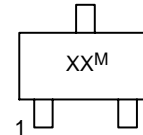


0.05 (0.002)

- NOTES:  
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
 2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.7 REF			0.028 REF		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC			0.026 BSC		
L	0.425 REF			0.017 REF		
HE	2.00	2.10	2.40	0.079	0.083	0.095

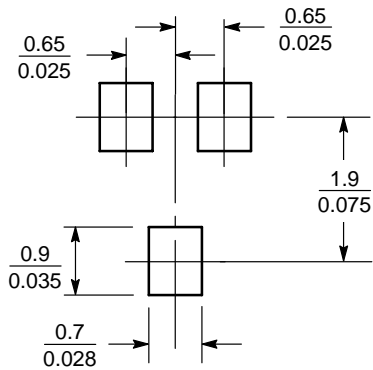
GENERIC MARKING DIAGRAM



- XX = Specific Device Code
- M = Date Code
- = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.

SOLDERING FOOTPRINT\*



SCALE 10:1 (mm/inches)