

RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free

FEATURES

Power smplifier applications

Power dissipation

P_{CM} : 1 W ($T_{amb}=25^{\circ}C$)

Collector current

I_{CM} : -1.5 A

Collector-base voltage

$V_{(BR)CBO}$: -180 V

Collector-emitter voltage

V_{CEO}

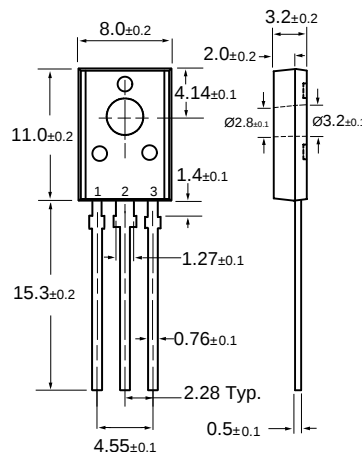
2SB649 : -120 V

2SB649A : -160 V

Operating and storage junction temperature range

T_J, T_{stg} : $-55^{\circ}C$ to $+150$

TO-18



1: Emitter
2: Collector
3: Base

Dimensions in Millimeters

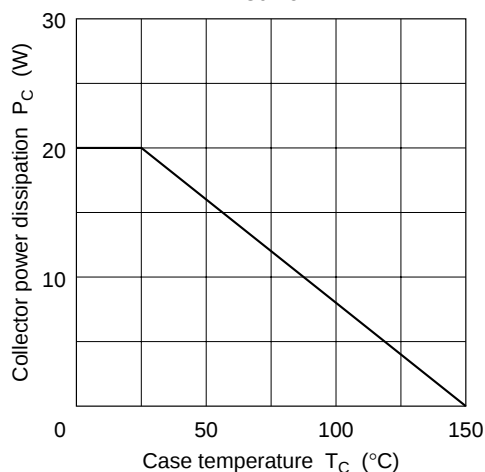
ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-1mA, I_E=0$	-180		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-10mA, I_B=0$	-120 -160		V
Collector-emitter breakdown voltage	$V_{(BR)EBO}$	$I_E=-1mA, I_C=0$	-5		V
Collector cut-off current	I_{CBO}	$V_{CB}=-160V, I_E=0$		-10	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=-4V, I_C=0$		-10	μA
DC current gain	$h_{FE(1)}$ *	$V_{CE}=-5V, I_C=-150mA$	60 60	320 200	
	$h_{FE(2)}$ *	$V_{CE}=-5V, I_C=-500mA$	30		
Collector-emitter saturation voltage	$V_{CE(sat)}$ *	$I_C=-500mA, I_B=-50mA$		-1	V
Base-emitter voltage	V_{BE} *	$V_{CE}=-5V, I_C=-150mA$		-1.5	V
Transition frequency	f_T	$V_{CE}=-5V, I_C=-150mA$	140		MHz
Collector output capacitance	C_{ob}	$V_{CB}=-10V, I_E=0, f=1MHz$	27		pF

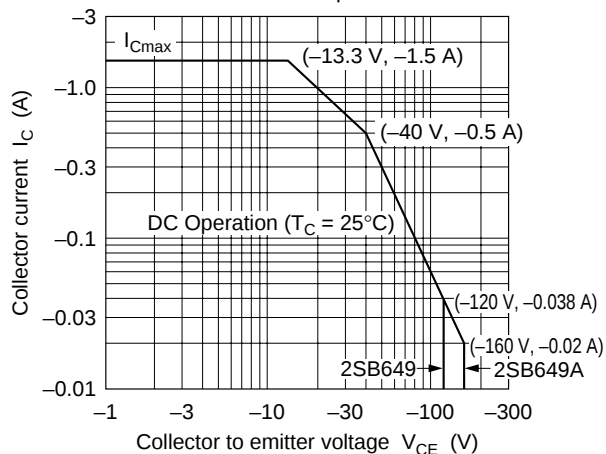
* The 2SB649 and 2SB649A are grouped by h_{FE1} as follows.

Rank	B	C	D
2SB649	60 - 120	100 - 200	160 - 320
2SB649A	60 - 120	100 - 200	----

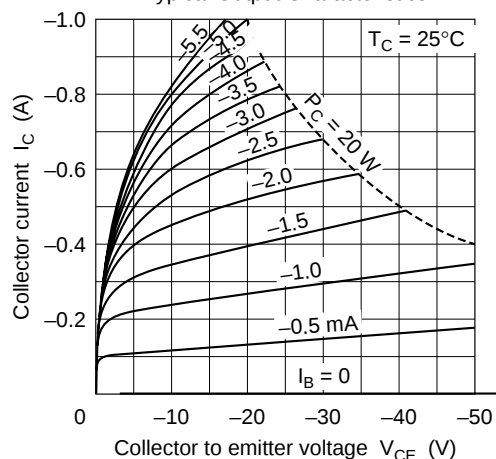
Maximum Collector Dissipation
Curve



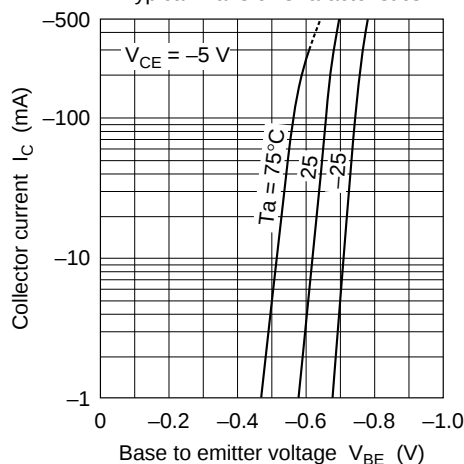
Area of Safe Operation



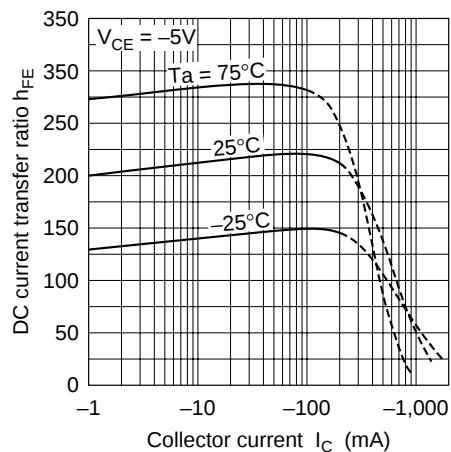
Typical Output Characteristics



Typical Transfer Characteristics



DC Current Transfer Ratio
vs. Collector Current



Collector to Emitter Saturation
Voltage vs. Collector Current

