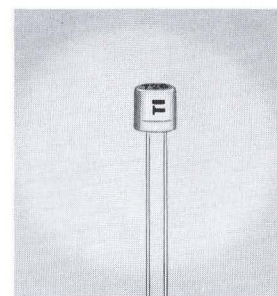


# TYPES 650C THROUGH 655C9 ALLOYED SILICON VOLTAGE REFERENCE DIODES



TYPES 650C THROUGH 655C9  
BULLETIN NO. DL-S 1002, JAN. 1959  
REPLACES BULLETIN NO. DL-S 785, AUG. 1957

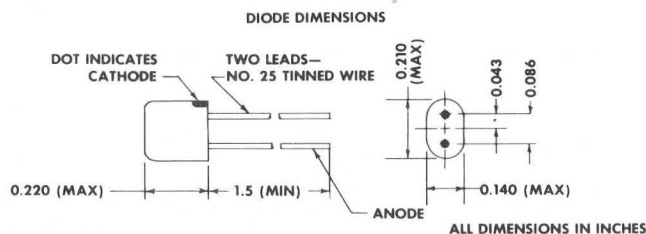
**STABLE VOLTAGE REFERENCE**  
**SINGLE-ENDED CASE FOR PRINTED BOARD MOUNTING**  
**LOW ZENER IMPEDANCE**



ACTUAL SIZE

## mechanical data

Metal case with glass-to-metal hermetic seal. Unit weight is 0.253 grams.



## maximum ratings

	650C	651C	652C	653C	654C9	655C9		
Average Rectified Forward Current at 25°C	$I_O$	125	120	110	100	100	100	mA
Average Rectified Forward Current at 150°C	$I_O$	50	45	40	40	40	40	mA
Power Dissipation at 25°C	P	150	150	150	150	150	150	mW
Power Dissipation at 150°C	P	40	40	40	40	40	40	mW
Operating Temperature, Ambient	$T_A$	-65 to +150						°C
Altitude		100,000						ft

## specifications

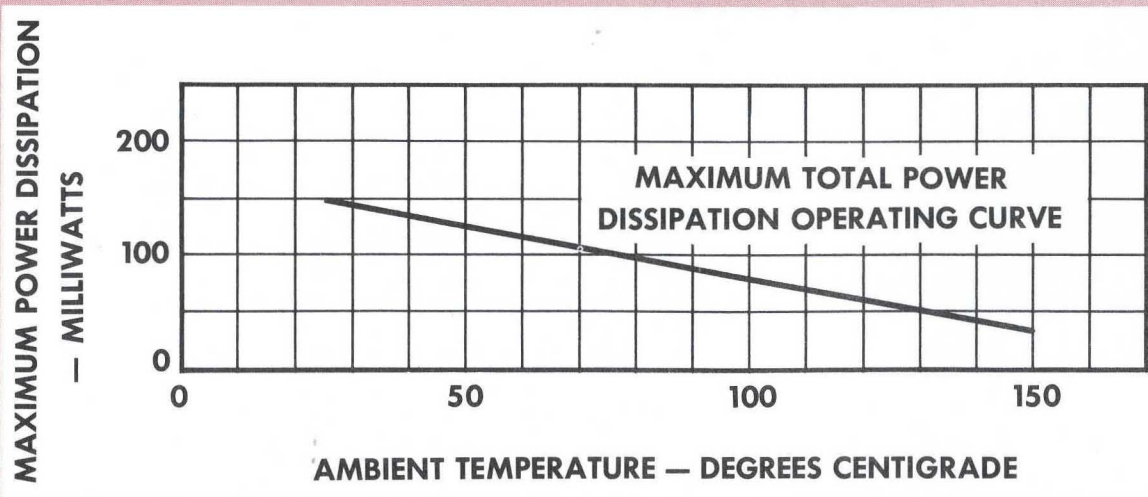
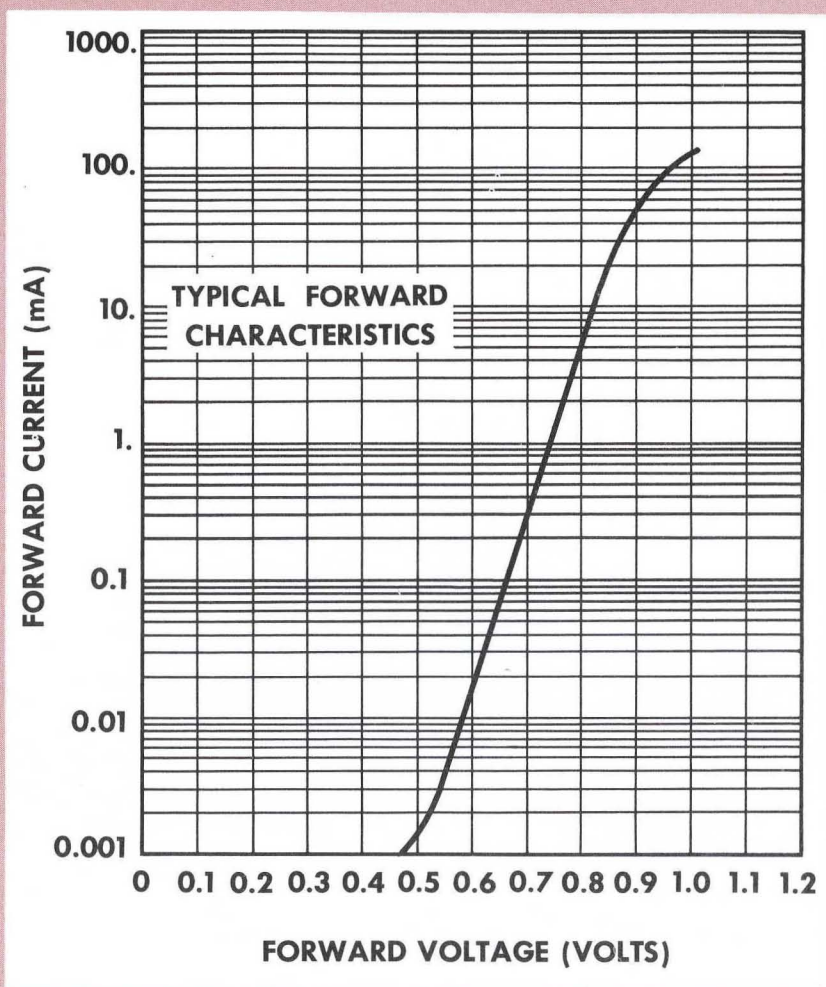
	650C	651C	652C	653C	654C9	655C9		
Reverse Breakdown Voltage Measured at 5mA at 25°C	$V_Z$	4.5	5.4	6.4	8.0	9.5	10.5	V
—Maximum	$V_Z$	3.7	4.3	5.2	6.2	8.5	9.5	V
—Minimum	$I_b$	125	100	75	60	60	60	mA
Minimum Forward Current at +1 volt at 25°C	$I_b$	0.1*	0.1	0.1	0.1	0.1	0.1	$\mu A$
Maximum Reverse Current at -1V at +25°C	$I_b$	20	20	20	20	20	20	$\mu A$
at +150°C	$I_b$	20	20	20	20	20	20	$\mu A$

\*Maximum reverse current of 650C0 and 650C1 is 0.15  $\mu A$  at -1 volt at 25°C. Type A-63 is identical to Type 650C0. Type A-64 is identical to Type 650C1.



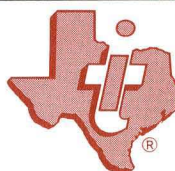
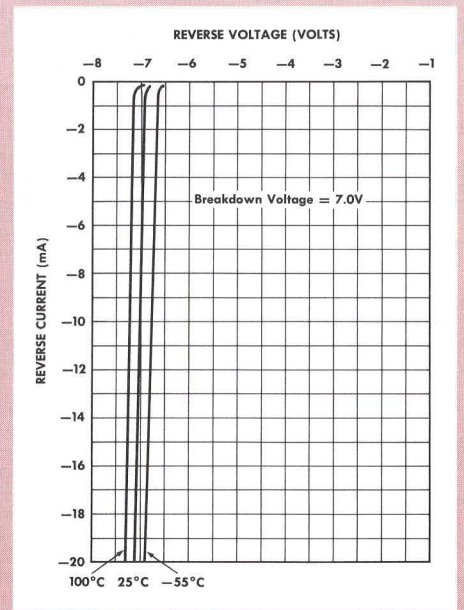
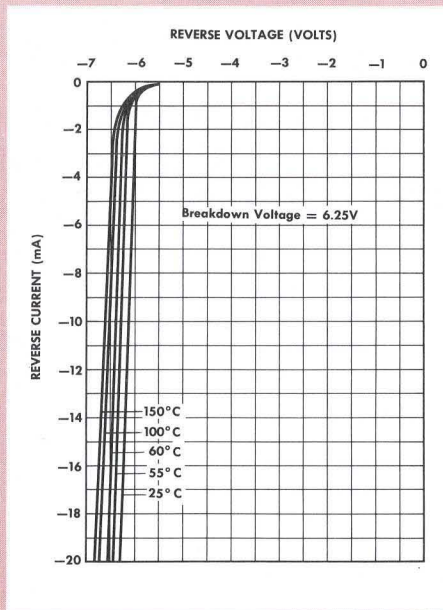
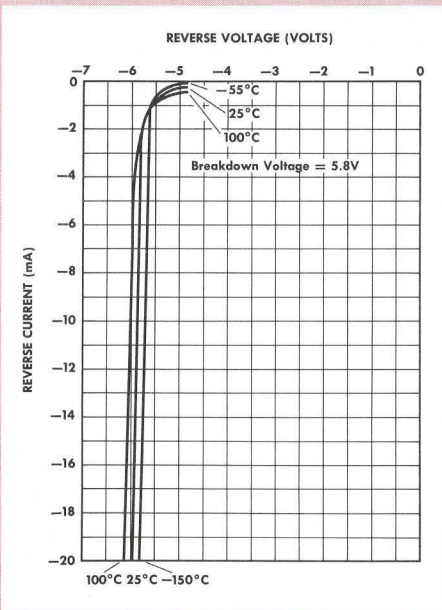
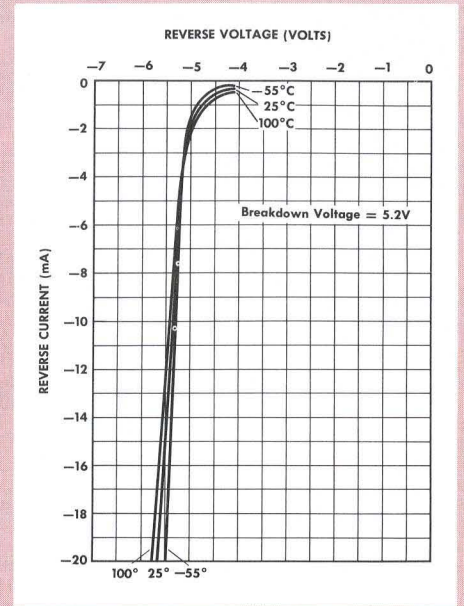
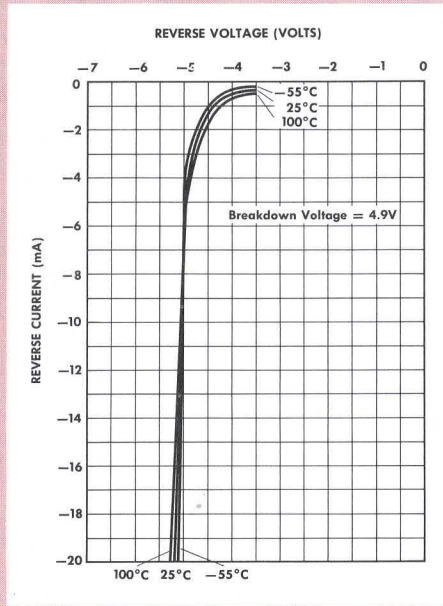
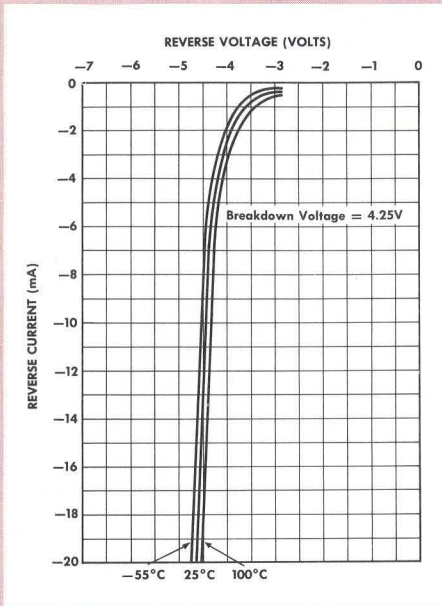
# TYPES 650C THROUGH 655C9

## TYPICAL CHARACTERISTICS





# TYPICAL VOLTAGE BREAKDOWN CHARACTERISTICS





### PLUS OR MINUS 5% TOLERANCE SERIES

The types listed below are supplied with a breakdown voltage within plus or minus 5% of the value indicated. Standard symbolization plus an additional color dot is used to identify these units.

Identifying Color Dot	Voltage		Voltage		Voltage		Voltage	
	Type	Breakdown	Type	Breakdown	Type	Breakdown	Type	Breakdown
Black	650C0	3.7V	651C0	4.5V	652C0	5.5V	653C0	6.5V
Brown	650C1	3.8V	651C1	4.6V	652C1	5.6V	653C1	6.6V
Red	650C2	3.9V	651C2	4.7V	652C2	5.7V	653C2	6.7V
Orange	650C3	4.0V	651C3	4.8V	652C3	5.8V	653C3	6.8V
Yellow	650C4	4.1V	651C4	4.9V	652C4	5.9V	653C4	7.0V
Green	650C5	4.2V	651C5	5.0V	652C5	6.0V	653C5	7.2V
Blue	650C6	4.3V	651C6	5.1V	652C6	6.1V	653C6	7.4V
Violet	650C7	4.4V	651C7	5.2V	652C7	6.2V	653C7	7.6V
Grey	---	---	651C8	5.3V	652C8	6.3V	653C8	7.8V
White	---	---	651C9	5.4V	652C9	6.4V	653C9	8.0V

Types 654C9 and 655C9 are plus or minus 0.5 volts.

### TYPICAL ZENER CHARACTERISTICS

