

Germanium PNP Transistor

2N277

40V / 15A

DATASHEET

OEM – Delco

Source: Delco Power Transistors 1958

DELCO RADIO DIVISION

GENERAL MOTORS CORPORATION

KOKOMO, INDIANA

2N277**POWER TRANSISTOR**

Distributed in the U.K. by

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DUNSTABLE, BEDFORDSHIRE

ENGINEERING DATA SHEET

SUPERSEDES ALL PREVIOUS DATA SHEETS

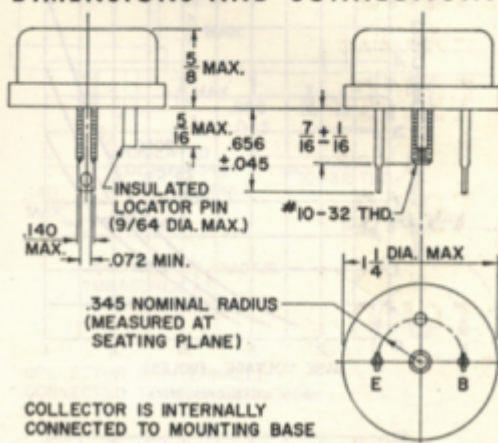
November 17, 1958

GENERAL DESCRIPTION

The improved Delco Radio Type 2N277 is a P-N-P germanium power transistor designed for general use with a 12 volt power supply. It is characterized by a new, higher maximum emitter current of 15 amperes, a maximum collector diode voltage of 40 volts and a thermal resistance below 1°C per watt. A low saturation resistance will give high efficiency in switching applications. The distortion is low both in class A operation and in class AB operation with matched pairs.

The case is hermetically sealed. The collector and the case are electrically connected.

The Delco 2N277 transistors will be supplied either in single units or in matched pairs.

DIMENSIONS AND CONNECTIONS**ABSOLUTE MAXIMUM RATINGS**

Collector diode voltage V_{CB} 40 volts	Maximum junction temperature	
($V_{EB} = -1.5$ volts)	Continuous	95°C
Emitter diode voltage V_{EB} 20 volts	Intermittent	100°C
Emitter current (continuous) 15 amp.	Minimum junction temperature	-65°C
Base current (continuous) 4 amp.		

ELECTRICAL CHARACTERISTICS ($T = 25^{\circ}\text{C}$)

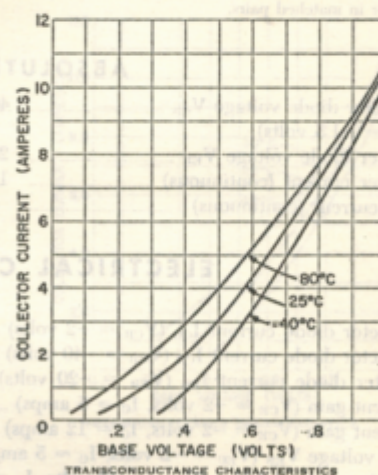
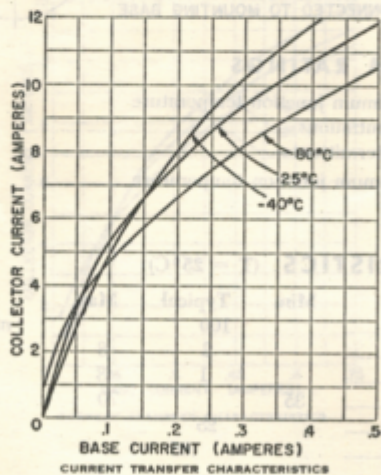
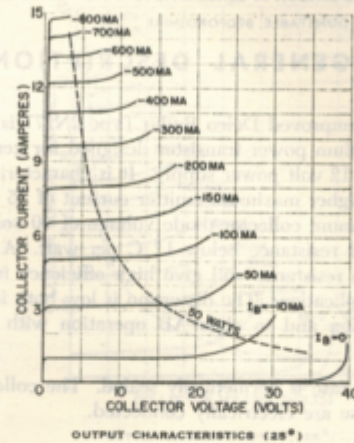
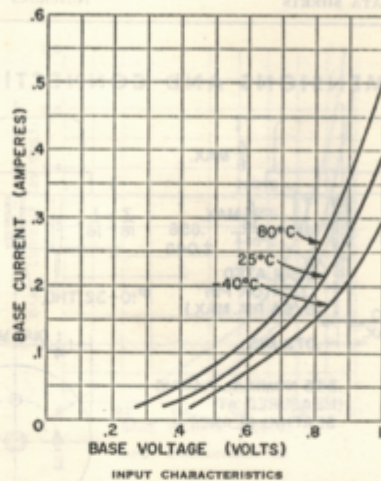
	Min.	Typical	Max.	
Collector diode current I_{CB} ($V_{CB} = -2$ volts)		100		microamp
Collector diode current I_{CB} ($V_{CB} = -40$ volts)		2	8	ma
Emitter diode current I_{EB} ($V_{EB} = -20$ volts)		1	8	ma
Current gain ($V_{CE} = -2$ volts, $I_C = 5$ amps)	35		70	
Current gain ($V_{CE} = -2$ volts, $I_C = 12$ amps)		25		
Base voltage V_{EB} ($V_{EC} = -2$ volts, $I_C = 5$ amps)65		volt
Floating potential V_{EB} ($V_{CB} = -40$ volts, $I_E = 0$)			1	volt
Saturation voltage V_{EC} ($I_B = 2$ amp, $I_C = 12$ amps)3		volt
Punch through voltage	40			volts
Collector to emitter voltage V_{CE} ($I_C = 300$ ma d.c., $V_{EB} = 0$)	40			volts
Collector to emitter voltage V_{CE} ($I_C = 300$ ma d.c., $I_B = 0$)		40		volts
Common emitter current amplification cutoff frequency ($I_C = 5$ amp, $V_{CE} = -6$ volts)		10		kcs
Rise time ("on" $I_C = 12$ Ade, $I_B = 2$ amp, $V_{CE} = -12$ volts)		15		microsec
Fall time ("off" $I_C = 0$, $V_{EB} = -6$ volts, $R_{EB} = 10$ ohms)		15		microsec

THERMAL CHARACTERISTICS

Thermal resistance (junction to mounting base)7	1	$^{\circ}\text{C}/\text{watt}$
Thermal capacity for pulses in the 1 to 10 millisecond range075		watt sec/ $^{\circ}\text{C}$

2N277

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TYPICAL CHARACTERISTICS, COMMON EMITTER**MECHANICAL DATA**

The 2N277 transistor has been designed to pass the following environmental tests: (The numbers refer to paragraphs of MIL-T-19500) Temperature Cycling (4.6.24), Glass Strain (4.6.25), Moisture Resistance (4.6.26), Shock (4.6.28), Vibration Fatigue (4.6.30), Vibration Noise (4.6.31), and Reduced Pressure (15 mm of mercury) (4.6.32). Maximum recommended torque on the mounting stud is twelve inch-pounds.

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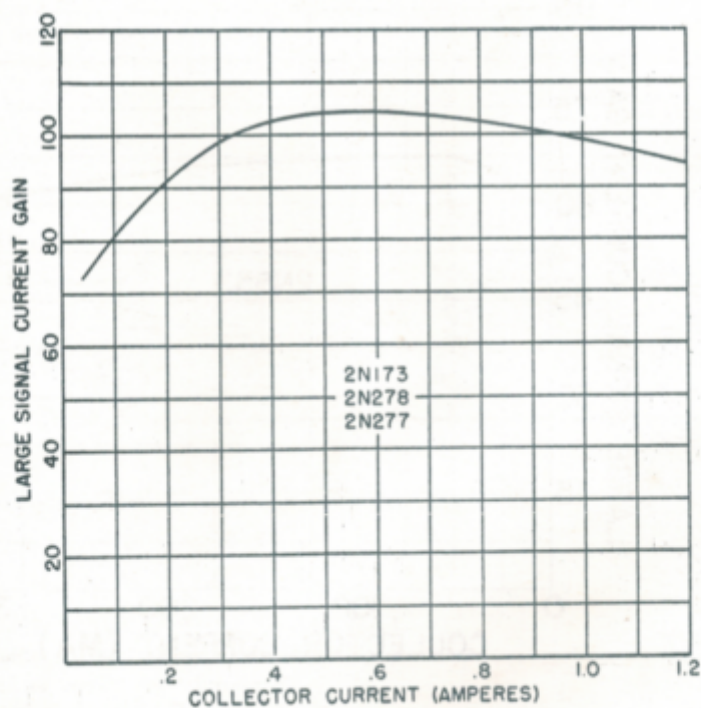
**LARGE SIGNAL CURRENT GAIN AT
LOW COLLECTOR CURRENTS**

APPLICATION NOTE 11-A

January 1, 1958

LARGE SIGNAL CURRENT GAIN AT LOW COLLECTOR CURRENTS

Many circuits using Delco power transistors draw currents less than one ampere. Because of the wide collector current range of the transistors, our engineering data sheets do not show in detail what typical current gain to expect at low values of collector current. The following graph shows the typical current gain of three of our transistors, when the collector current is less than 1.2 amperes.



**LARGE SIGNAL CURRENT GAIN
AT LOW COLLECTOR CURRENTS**