

Germanium PNP Transistor

2N278

30/50V / 15A

DATASHEET

OEM – Delco

Source: Delco Power Transistors 1958

DELCO RADIO DIVISION

GENERAL MOTORS CORPORATION

KOKOMO, INDIANA

2N278**POWER TRANSISTOR**

Distributed in the U.K. by
AC-DELCO DIVISION OF GENERAL MOTORS LTD.
DUNSTABLE, BEDFORDSHIRE

ENGINEERING DATA SHEET
SUPERSEDES ALL PREVIOUS DATA SHEETS

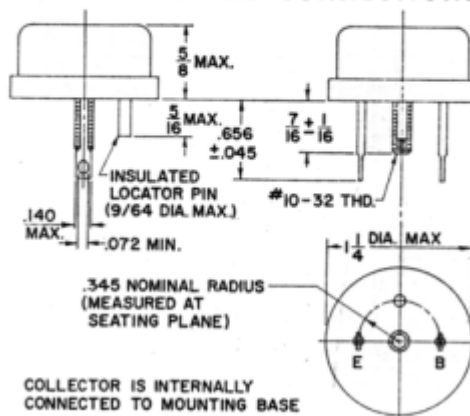
November 18, 1958

GENERAL DESCRIPTION

The improved Delco Radio Type 2N278 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 50 volts and a thermal resistance below 1° C per watt. A low saturation resistance will give higher 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 2N278 transistors will be supplied either in single units or in matched pairs.

DIMENSIONS AND CONNECTIONS**ABSOLUTE MAXIMUM RATINGS**

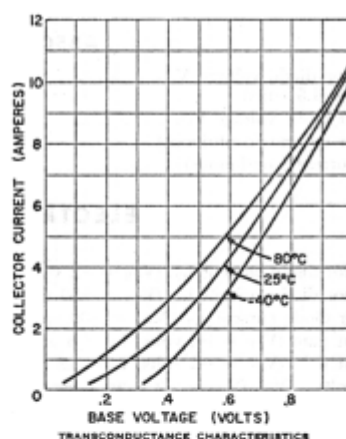
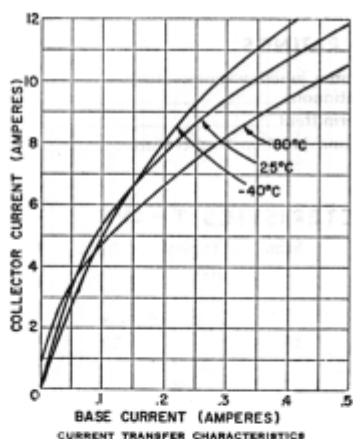
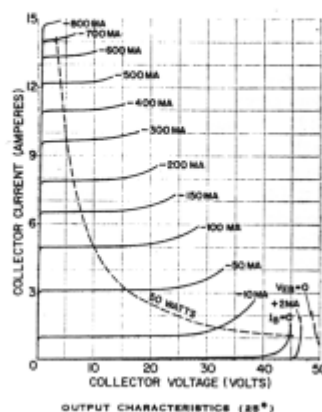
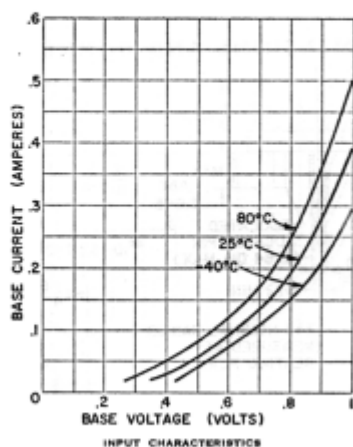
Collector diode voltage V_{CB} 50 volts	Maximum junction temperature	
($V_{EB} = -1.5$ volts)	Continuous	95°C
Emitter diode voltage V_{EB} 30 volts	Intermittent	100°C
Emitter current (continuous) 15 amp.	Minimum junction temperature	-65°C
Base current (continuous) 4 amp.		

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

	Min.	Typical	Max.	
Collector diode current I_{CO} ($V_{CB} = -2$ volts)		100		microamp
Collector diode current I_{CQ} ($V_{CB} = -50$ volts)		2	8	ma
Emitter diode current I_{EQ} ($V_{EB} = -30$ 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} ($V_{CB} = -50$ volts, $I_E = 0$)			1	volt
Saturation voltage V_{BE} ($I_E = 2$ amp, $I_C = 12$ amps)		.3	1	volt
Punch through voltage	50			volts
Collector to emitter voltage V_{CES} ($I_C = 300$ ma d.c., $V_{EB} = 0$)	45			volts
Collector to emitter voltage V_{CEQ} ($I_C = 300$ ma d.c., $I_E = 0$)		45		volts
Common emitter current amplification cutoff frequency ($I_C = 5$ amp, $V_{CE} = -6$ volts)		10		kes
Rise time ("on" $I_C = 12$ Adc, $I_E = 2$ 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	°C/watt
Thermal capacity for pulses in the 1 to 10 millisecond range	.075		watt sec/°C

2N278DELCO RADIO DIVISION
GENERAL MOTORS CORPORATION**TYPICAL CHARACTERISTICS, COMMON EMITTER****MECHANICAL DATA**

The 2N278 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.