

**Programmable Unijunction Transistor**

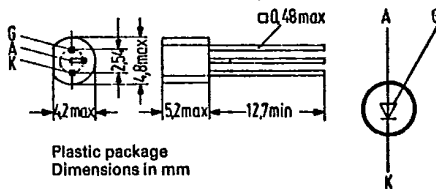
**BRY 56**

*T-25-09*

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Programmable silicon planar unijunction transistor in TO 92 plastic package (10 A 3 DIN 41868).

Type	Ordering code
BRY 56 <sup>1)</sup>	Q68000-A803
BRY 56 A	Q68000-A803-S1
BRY 56 B	Q68000-A803-S2
BRY 56 C	Q68000-A803-S3



**Maximum ratings**

Voltage gate terminal cathode  
Voltage gate terminal anode  
Anode current, average value  
( $T_{amb} \leq 25^\circ\text{C}$ )  
( $T_{case} \leq 85^\circ\text{C}$ )  
Anode current, peak value  
( $t = 10 \mu\text{s}; V_T = 0.001$ )  
Current increase to  $I_A = 2.5 \text{ A}$   
Overload current surge  
( $t = 10 \mu\text{s}; T_j = 150^\circ\text{C}$ )  
Junction temperature  
Storage temperature range  
Total power dissipation ( $T_{amb} \leq 75^\circ\text{C}$ )<sup>2)</sup>

	BRY 56 A BRY 56 B BRY 56 C	
$V_{GC}$	70	V
$V_{GA}$	70	V
$I_{A AV}$ ( $T_{amb} \leq 25^\circ\text{C}$ )	175	mA
$I_{A AV}$ ( $T_{case} \leq 85^\circ\text{C}$ )	250	mA
$I_{AM}$	2.5	A
$dI_A/dt$	20	A/ $\mu\text{s}$
$I_{A surge}$	3	A
$T_j$	150	$^\circ\text{C}$
$T_{stg}$	-65 to +150	$^\circ\text{C}$
$P_{tot}$	300	mW

**Thermal resistance**

Junction to ambient air<sup>2)</sup>  $R_{thJA} \leq 250 \text{ K/W}$

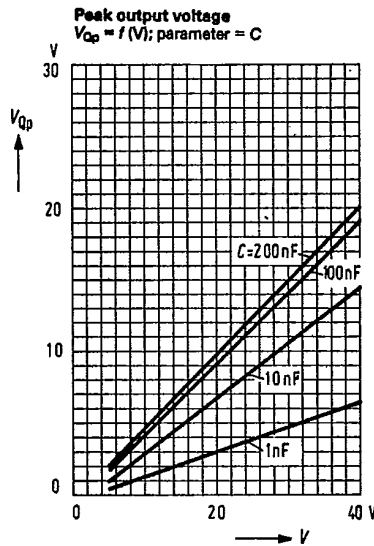
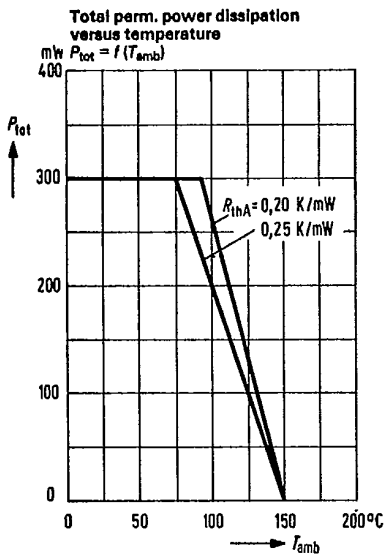
1) If a transistor is ordered without an exact indication of the current amplification wanted, then a transistor with a current amplification group available at stock will be delivered.

2) If mounted on PCBs with max. 3 mm long leads and a copper area of min. 10 x 10 mm for the anode terminal, then  $R_{thJA} \leq 200 \text{ K/W}$ , the power dissipation of 300 mW is then permitted up to  $T_{amb} = 90^\circ\text{C}$ .

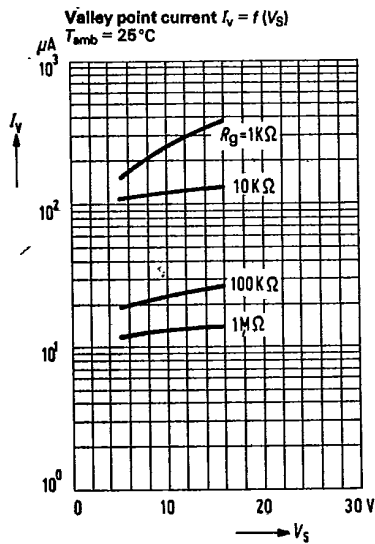
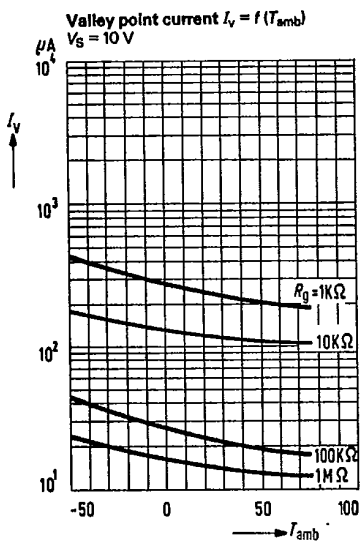
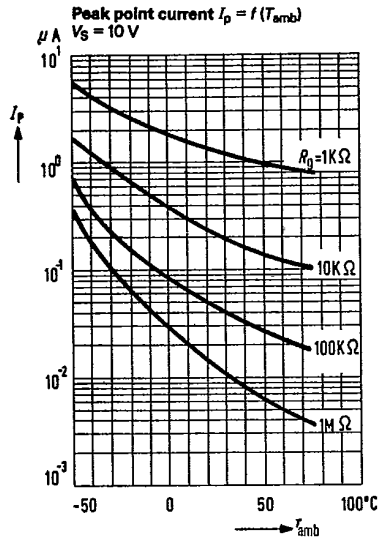
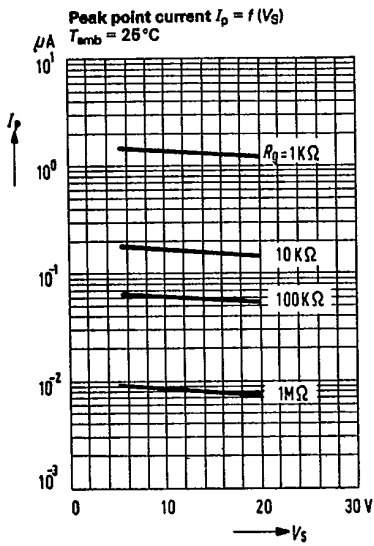
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Static characteristics ( $T_{amb} = 25^{\circ}\text{C}$ )

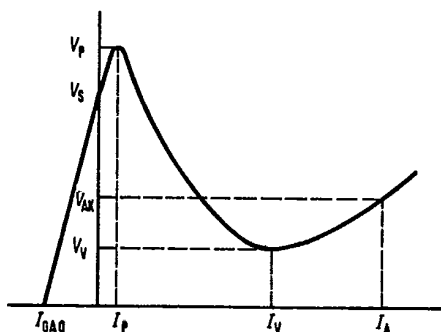
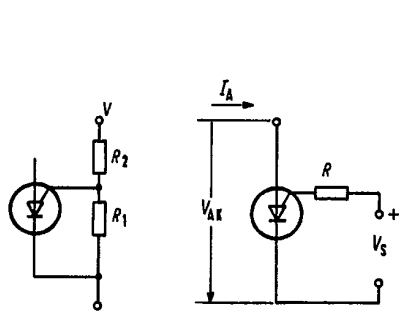
	BRY 56 A	BRY 56 B	BRY 56 C		
Peak point current at $V_S = 10\text{ V}$ ; $R_g = 10\text{ k}\Omega$	$I_P$	<220	180 to 1100	900 to 5000	nA
Valley point current at $V_S = 10\text{ V}$ ; $R_g = 10\text{ k}\Omega$	$I_V$	$\geq 2$	$\geq 10$	$\geq 50$	$\mu\text{A}$
Peak point current at $V_S = 10\text{ V}$ ; $R_g = 100\text{ k}\Omega$	$I_P$	$\geq 2$	$\geq 2$	$\geq 2$	$\mu\text{A}$
Valley point current at $V_S = 10\text{ V}$ ; $R_g = 100\text{ k}\Omega$	$I_V$	$\geq 5$	$\geq 5$	$\geq 5$	$\mu\text{A}$
Forward voltage ( $I_A = 100\text{ mA}$ )	$V_F$	$\geq 1.4$	$\geq 1.4$	$\geq 1.4$	V
Cutoff current gate terminal anode ( $V_S = 70\text{ V}$ ; $I_K = 0$ )	$I_{GAO}$	$\leq 10$	$\leq 10$	$\leq 10$	nA
Cutoff current gate terminal cathode ( $V_S = 70\text{ V}$ ; $V_{AK} = 0$ )	$I_{GKS}$	$\leq 100$	$\leq 100$	$\leq 100$	nA
Offset voltage	$V_T$	$V_P - V_S$	-	-	V



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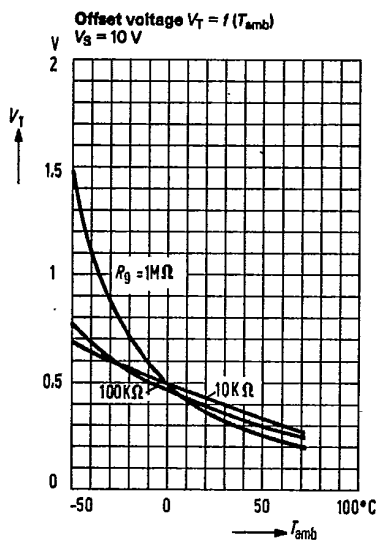
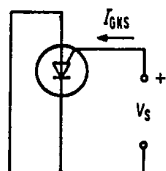
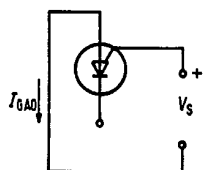


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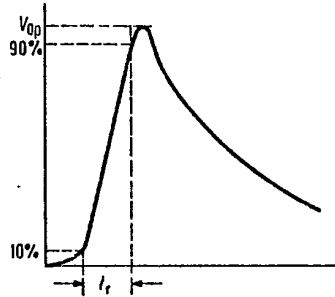
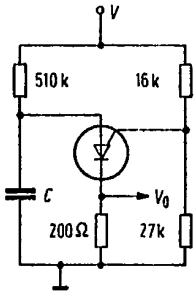
$$R_0 = \frac{R_1 \cdot R_2}{R_1 + R_2}$$

$$V_S = \frac{R_1}{R_1 + R_2} \cdot V$$

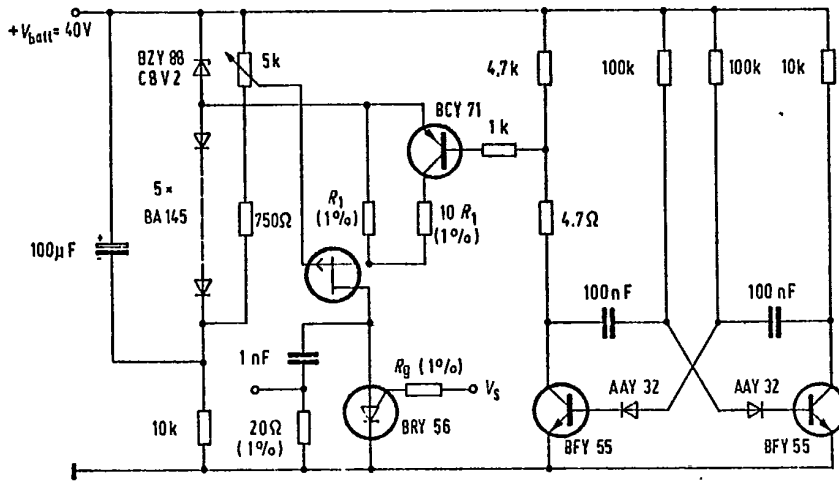


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Rise time of output voltage at  $V = 20\text{ V}$ ,  $C = 10\text{ nF}$ :  $t_r \leq 80\text{ ns}$   
 Peak value of output voltage at  $V = 20\text{ V}$ ,  $C = 0.2\text{ }\mu\text{F}$ :  $V_{Op} \approx 6\text{ V}$



Test circuit





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