

PNP Transistors for Switching Applications

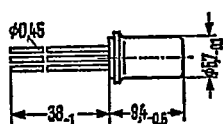
ASY 48
ASY 70

SIEMENS AKTIENGESELLSCHAFT

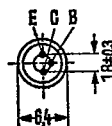
ASY 48 and ASY 70 are alloyed germanium PNP transistors in 1 A 3 DIN 41871 case (similar to TO 1). The leads are electrically insulated from the case. The collector terminal is marked by a red dot at the edge of the case. The transistors are particularly suitable for switching applications.

Not for new design

Type	Ordering code
ASY 48 ¹⁾	Q60118-Y82
ASY 48 IV	Q60118-Y48-D
ASY 48 V	Q60118-Y48-E
ASY 48 VI	Q60118-Y48-F
ASY 70 ¹⁾	Q60118-Y81
ASY 70 IV	Q60118-Y70-D
ASY 70 V	Q60118-Y70-E
ASY 70 VI	Q60118-Y70-F
Heat sink	Q62901-B1



Approx. weight 1 g



Dimensions in mm

Maximum ratings

Collector-emitter voltage
Collector-emitter voltage ($V_{BE} \geq 0.2$ V)
Collector-base voltage
Emitter-base voltage
Collector current
Base current
Junction temperature
Storage temperature range
Total power dissipation ($T_{case} = 45^\circ\text{C}$)

	ASY 48	ASY 70	
$-V_{CEO}$	45	30	V
$-V_{CEV}$	64	32	V
$-V_{CBO}$	64	32	V
$-V_{EBO}$	16	16	V
$-I_C$	300	300	mA
$-I_B$	60	60	mA
T_j	90	90	$^\circ\text{C}$
T_{stg}	-55 to +75	-55 to +75	$^\circ\text{C}$
P_{tot}	900	900	mW

Thermal resistance

Junction to ambient air
Junction to case

R_{thJA}	≤ 300	≤ 300	K/W
R_{thJC}	≤ 50	≤ 50	K/W

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

Collector cutoff current ($-V_{CBO} = 10$ V)
Collector cutoff current ($-V_{CBO} = 32$ V)
Collector cutoff current ($-V_{CBO} = 64$ V)
Emitter cutoff current ($-V_{EBO} = 5$ V)
Emitter cutoff current ($-V_{EBO} = 16$ V)
Collector cutoff current
($-V_{CEV} = 32$ V; $V_{BE} \geq 0.2$ V)
($-V_{CEV} = 64$ V; $V_{BE} \geq 0.2$ V)
Collector-emitter saturation voltage
($I_C = 300$ mA; $I_B = 15$ mA)

	ASY 48	ASY 70	
$-I_{CBO}$	<10	3 (<10)	μA
$-I_{CBO}$	—	5 (<18)	μA
$-I_{CBO}$	6 (<18)	—	μA
$-I_{EBO}$	—	3	μA
$-I_{EBO}$	4 (<18)	4 (<18)	μA
$-I_{CEV}$	—	5 (<18)	μA
$-I_{CEV}$	6 (<18)	—	μA
$-V_{CEsat}$	0.15(<0.25)	0.15(<0.25)	V

1) If the order does not include any exact indication of the current amplification group desired, a transistor of a current amplification group just available from stock will be delivered.

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

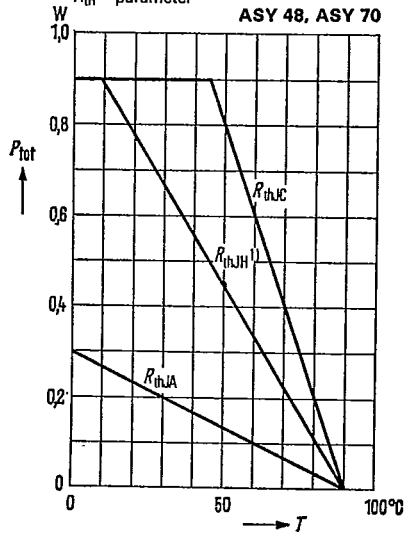
The transistors are grouped according to the DC current gain h_{FE} at $-I_C = 100\text{ mA}$ and are marked by Roman numerals.

h_{FE} group		IV	V	VI	
$-I_C$ mA	$-V_{CE}$ V	h_{FE} I_C/I_B	h_{FE} I_C/I_B	h_{FE} I_C/I_B	$-V_{BE}$ V
2	0.5	47	79	114	0.13 (<0.20)
100	0.5	45 (30 to 60)	75 (50 to 100)	110 (75 to 150)	0.32 (<0.55)
300	0.5	35	58	86	0.44 (<0.80)

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

	ASY 48	ASY 70	
Transition frequency $-I_C = 5\text{ mA}$; $-V_{CE} = 5\text{ V}$	1.2	1.5	MHz
Base intrinsic resistance	75 (<200)	75 (<200)	Ω
Collector-base capacitance $-V_{CBO} = 5\text{ V}$	25 (<40)	25 (<40)	pF
Switching times			
Current selection			
Operating point: $-I_C = 100\text{ mA}$;			
$U = 1.5$ to 3 ; $a = 1$ to 2 ;			
$-V_{CC} = 10\text{ V}$			
Voltage selection			
Operating point: $-I_C = 100\text{ mA}$;			
$-V_{BBE1} = 4\text{ V}$; $V_{BBE2} = 1\text{ V}$;			
$R_{BB} = 100\ \Omega$			
t_T	3.5 (<10)	3.5 (<10)	μs
$t_{bb'}$	1.1 (<3)	1.1 (<3)	μs
C_{CBO}	2.1 (<7)	2.1 (<7)	μs
t_{on}	0.25 (<1)	0.15 (<1)	μs
t_s	1.3 (<2.5)	1.3 (<2.5)	μs
t_f	0.5 (<1.5)	0.5 (<1.5)	μs

Total perm. power dissipation
versus temperature $P_{tot} = f(T)$;
 R_{th} = parameter



1) Heat sink aluminum $12.5\text{ cm}^2 \times 2\text{ mm}$

Permissible pulse load
 $r_{thJC} = f(t)$ v = parameter

