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T-37-07

PNP Transistors for Switching Applications

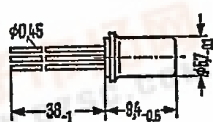
ASY 48
ASY 70

SIEMENS AKTIENGESELLSCHAFT

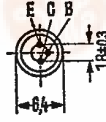
ASY 48 and ASY 70 are alloyed germanium PNP transistors in 1 A 3 DIN 41871 case (similar to TO 1). The leads are electrically insulated from the case. The collector terminal is marked by a red dot at the edge of the case. The transistors are particularly suitable for switching applications.

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

	ASY 48	ASY 70	
Collector-emitter voltage	-V _{CEO} 45	30	V
Collector-emitter voltage (V _{BE} ≥ 0.2 V)	-V _{CEV} 64	32	V
Collector-base voltage	-V _{CBO} 64	32	V
Emitter-base voltage	-V _{EBO} 16	16	V
Collector current	-I _C 300	300	mA
Base current	-I _B 60	60	mA
Junction temperature	T _j 90	90	°C
Storage temperature range	T _{stg} -55 to +75	-55 to +75	°C
Total power dissipation (T _{case} = 45 °C)	P _{tot} 900	900	mW

Thermal resistance

	R _{thJA}	R _{thJC}	
Junction to ambient air	≤ 300	≤ 300	K/W
Junction to case	≤ 50	≤ 50	K/W

Static characteristics (T_{amb} = 25 °C)

	ASY 48	ASY 70	
Collector cutoff current (-V _{CBO} = 10 V)	-I _{CBO} < 10	3 (< 10)	μA
Collector cutoff current (-V _{CBO} = 32 V)	-I _{CBO} -	5 (< 18)	μA
Collector cutoff current (-V _{CBO} = 64 V)	-I _{CBO} 6 (< 18)	-	μA
Emitter cutoff current (-V _{EBO} = 5 V)	-I _{EBO} -	3	μA
Emitter cutoff current (-V _{EBO} = 16 V)	-I _{EBO} 4 (< 18)	4 (< 18)	μA
Collector cutoff current (-V _{CEV} = 32 V; V _{BE} ≥ 0.2 V)	-I _{CEV} -	5 (< 18)	μA
Collector cutoff current (-V _{CEV} = 64 V; V _{BE} ≥ 0.2 V)	-I _{CEV} 6 (< 18)	-	μA
Collector-emitter saturation voltage (I _C = 300 mA; I _B = 15 mA)	-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 ($T_{amb} = 25^\circ\text{C}$)

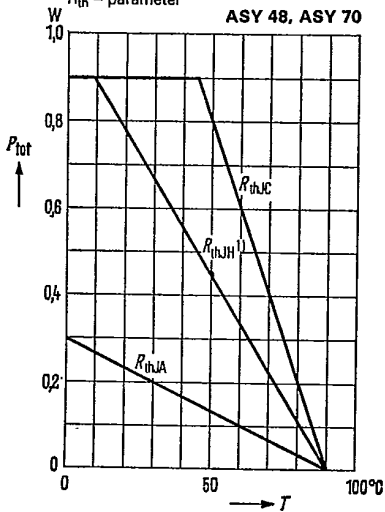
The transistors are grouped according to the DC current gain h_{FE} at $-I_C = 100\text{ mA}$ and are marked by Roman numerals.

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 $-I_C = 5\text{ mA}$; $-V_{CE} = 5\text{ V}$	f_T 1.2	1.5	MHz
Base intrinsic resistance	$r_{bb'}$ 75 (<200)	75 (<200)	Ω
Collector-base capacitance $-V_{CB0} = 5\text{ V}$	C_{CB0} 25 (<40)	25 (<40)	pF
Switching times			
Current selection			
Operating point: $-I_C = 100\text{ mA}$; $\bar{u} = 1.5$ to 3 ; $a = 1$ to 2 ; $-V_{CC} = 10\text{ V}$	t_{on} 3.5 (<10)	3.5 (<10)	μs
	t_s 1.1 (<3)	1.1 (<3)	μs
	t_f 2.1 (<7)	2.1 (<7)	μs
Voltage selection			
Operating point: $-I_C = 100\text{ mA}$; $-V_{BBE1} = 4\text{ V}$; $V_{BBE2} = 1\text{ V}$; $R_{BB} = 100\ \Omega$	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 cm² x 2 mm

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

