PNP Transistors for Switching Applications

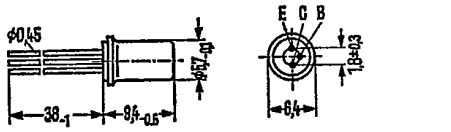
ASY 48
ASY 70

SIEMENS AKTIENGESELLSCHAF

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 transitors 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 ($V_{BE} \geq 0.2$ 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				
Junction to ambient air	R_{thJA}	≤300	≤300	K/W
Junction to case	R_{thJC}	≤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; $V_{BE} \geq 0.2$ V)	$-I_{CEV}$	–	5 (<18)	µA
($-V_{CEV}$ = 64 V; $V_{BE} \geq 0.2$ 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.

1563 G-04

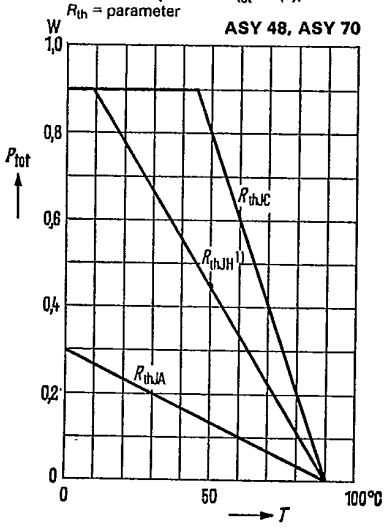
Static characteristics (T_{amb} = 25 °C)

The transistors are grouped according to the DC current gain h_{FE} at $-I_C$ = 100 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 °C)		ASY 48	ASY 70	
Transition frequency $-I_C$ = 5 mA; $-V_{CE}$ = 5 V	f_T	1.2	1.5	MHz
Base intrinsic resistance	$r_{bb'}$	75 (<200)	75 (<200)	Ω
Collector-base capacitance $-V_{CBO}$ = 5 V	C_{CBO}	25 (<40)	25 (<40)	pF
Switching times				
Current selection				
Operating point: $-I_C$ = 100 mA;	t_{on}	3.5 (<10)	3.5 (<10)	µs
$\ddot{u}$ = 1.5 to 3; a = 1 to 2;	t_s	1.1 (<3)	1.1 (<3)	µs
$-V_{CC}$ = 10 V	t_f	2.1 (<7)	2.1 (<7)	µs
Voltage selection				
Operating point: $-I_C$ = 100 mA;	t_{on}	0.25 (<1)	0.15 (<1)	µs
$-V_{BBE1}$ = 4 V; V_{BBE2} = 1 V;	t_s	1.3 (<2.5)	1.3 (<2.5)	µs
R_{BB} = 100 Ω	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