Memory/Clock Drivers

DH3725C quad NPN core driver

general description

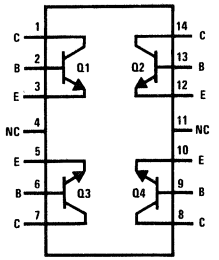
The DH3725C consists of four 2N3725 type NPN transistors mounted in a 14-pin molded dual-in-line package. The device is primarily intended for core memory application requiring operating currents in the ampere range, high stand-off voltage, and fast turn-on and turn-off times.

typical characteristics

Turn-ON Time	18 ns
Turn-OFF Time	45 ns
Collector Current	1A
Collector-Base Breakdown Voltage	120V typ.
Collector Saturation Voltage at I_C = 1A	0.55V
Collector Saturation Voltage at I_C = 0.5A	0.31V

connection diagram

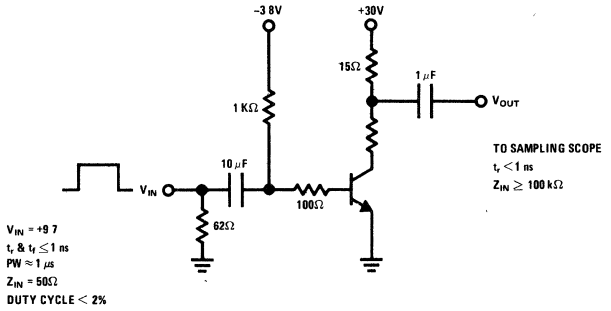
Dual-In-Line Package



TOP VIEW

Order Number DH3725CD
See Package 1
Order Number DH3725CN
See Package 22

switching time test circuit



$I_C \approx 500$ mA, $I_{B1} \approx 50$ mA, $I_{B2} \approx -50$ mA

absolute maximum ratings

Collector to Base Voltage	80V
Collector to Emitter Voltage	80V
Collector to Emitter Voltage (Note 1)	50V
Emitter to Base Voltage	6V
Collector Current – Continuous	1.0A
Power Dissipation (T_A = 25°C)	0.6W
Power Dissipation (T_C = 25°C)	1.5W
Operating Junction Temperature	150°C Max
Operating Temperature Range	0°C to +85°C
Storage Temperature Range	−65°C to +150°C
Lead Temperature (Soldering, 10 sec.)	300°C

electrical characteristics – Each transistor (T_A = 25°C, unless otherwise specified)

PARAMETER	CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNITS
Collector to Emitter Sustaining Voltage (V_{CEO} (sust)	I_C = 10 mA, I_B = 0	50			V
Collector to Emitter Breakdown Voltage (BV_{CES})	I_C = 10 μA, V_{BE} = 0	80			V
Collector to Base Breakdown Voltage (BV_{CBO})	I_C = 10 μA, I_E = 0	80			V
Emitter to Base Breakdown Voltage (BV_{EBO})	I_C = 0, I_E = 10 μA	6.0			V
Collector Saturation Voltage ($V_{CE\ (Sat)}$) (Note 2)	I_C = 1A, I_B = 100 mA		0.55	0.95	V
	I_C = 0.5A, I_B = 50 mA		0.31	0.52	V
	I_C = 0.1A, I_B = 10 mA		0.19	0.26	V
DC Pulse Current Gain (h_{FE}) (Note 2)	I_C = 1A, V_{CE} = 5V	25	65		
	I_C = 0.5A, V_{CE} = 1V	35	45		
	I_C = 0.1A, V_{CE} = 1V	60	90	150	
Base Saturation Voltage (V_{BE} (Sat) (Note 2)	I_C = 1A, I_B = 100 mA		1.10	1.70	V
	I_C = 0.5A, I_B = 50 mA		0.95	1.20	V
	I_C = 0.1A, I_B = 10 mA		0.75	0.86	V
Collector Cutoff Current (I_{CBO})	I_E = 0, V_{CB} = 60V		0.33	1.70	μA
Turn-ON Time	I_C = 0.5A, I_{B1} = 50 mA (See test circuit)		18	30	ns
Turn-OFF Time	I_C = 0.5A, I_{B1} = 50 mA I_{B2} = 50 mA (See test circuit)		45	60	ns
High Frequency Current Gain	f = 100 MHz, I_C = 50 mA, V_{CE} = 10V	2.5	4.5		
Common Base, Open Circuit, Output Capacitance	I_E = 0, V_{CB} = 10V		4.8	10	pF
Common Base, Open Circuit, Input Capacitance	I_C = 0, V_{BE} = 0.5V		40	55	pF

Note 1: Ratings refer to a high-current point where collector-to-emitter voltage is lowest.
Note 2: Pulse conditions. Length = 300 μs, duty cycle = 1%.