2N3724, 2N3725 — 2N4013, 2N4014 (continued)

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS (continued)				
Collector-Emitter Saturation Voltage*	$V_{CE(sat)}$*			Vdc
(I_C = 10 mAdc, I_B = 1.0 mAdc)		-	0.25	
(I_C = 100 mAdc, I_B = 10 mAdc) 2N3724, 2N4013		-	0.20	
2N3725, 2N4014		-	0.26	
(I_C = 300 mAdc, I_B = 30 mAdc) 2N3724, 2N4013		-	0.32	
2N3725, 2N4014		-	0.40	
(I_C = 500 mAdc, I_B = 50 mAdc) 2N3724, 2N4013		-	0.42	
2N3725, 2N4014		-	0.52	
(I_C = 800 mAdc, I_B = 80 mAdc) 2N3724, 2N4013		-	0.65	
2N3725, 2N4014		-	0.80	
(I_C = 1.0 Adc, I_B = 100 mAdc) 2N3724, 2N4013		-	0.75	
2N3725, 2N4014		-	0.95	
Base-Emitter Saturation Voltage*	$V_{BE(sat)}$*			Vdc
(I_C = 10 mAdc, I_B = 1.0 mAdc)		-	0.76	
(I_C = 100 mAdc, I_B = 10 mAdc)		-	0.86	
(I_C = 300 mAdc, I_B = 30 mAdc)		-	1.1	
(I_C = 500 mAdc, I_B = 50 mAdc)		0.9	1.2	
(I_C = 800 mAdc, I_B = 80 mAdc)		-	1.5	
(I_C = 1.0 Adc, I_B = 100 mAdc)		-	1.7	
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain—Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	f_T	300	-	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 140 kHz) 2N3724, 2N4013	C_{ob}	-	12	pF
2N3725, 2N4014		-	10	
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 140 kHz)	C_{ib}	-	55	pF

SWITCHING CHARACTERISTICS

			Min	Max	Unit
Turn-On Time	(V_{CC} = 30 Vdc, $V_{BE(off)}$ = 3.8 Vdc, I_C = 500 mAdc, I_{B1} = 50 mAdc) (See Figure 1)	t_{on}	-	35	ns
Delay Time		t_d	-	10	ns
Rise Time		t_r	-	30	ns
Turn-Off Time	(V_{CC} = 30 Vdc, I_C = 500 mAdc, I_{B1} = I_{B2} = 50 mAdc) (See Figure 1)	t_{off}	-	60	ns
Storage Time		t_s	-	50	ns
Fall Time 2N3724, 2N4013		t_f	-	25	ns
2N3725, 2N4014			-	30	

* Pulse Test: Pulse Width = 300 µs, Duty Cycle = 1.0%.

FIGURE 1 — SWITCHING TIMES TEST CIRCUIT

$Z_{in} \geq 100 \text{ k}\Omega$
$t_r < 1.0$ ns

V_{in} = +9.7
PULSE GENERATOR
t_r, $t_f \leq$ 1.0 ns
P.W. ≈ 1.0 µs
Z_{in} = 50 Ω
D.C. < 2.0%