

January 1990
Edition 1.1T-43-25
FUJITSU

PRODUCT PROFILE

FT5763M, FT5766M

Silicon Darlington Transistor Array

FT5763M, FT5766M

ABSOLUTE MAXIMUM RATINGS

(Ta = 25°C)

Rating	Symbol	Condition	Value	Unit
Storage Temperature	T_{stg}		-55 ~ +150	°C
Junction Temperature	T_j		+150	°C
Collector to Base Voltage	V_{CBO}		150	V
Emitter to Base Voltage	V_{EBO}		5	V
Collector to Emitter Voltage	V_{CEO}		100	V
Collector Current	(Continuous)	I_C	±1.5	A
	(Pulsed)	I_{CP}	$P_W \leq 1 \text{ ms, D.R.} \leq 50\%$	±3
Base Current (Continuous)	I_B		0.1	A
Diode Forward Current	I_{FM}	$P_W \leq 0.5 \text{ ms, D.R.} \leq 15\% (*)$	0.5	A
	I_{FSM}	$P_W \leq 100 \text{ ms, Single Pulse} (*)$	3	A
Diode Reverse Voltage	V_R	Pin 3 – Pin 2, 4, Pin 10 – Pin 9, 11 (*)	110	V
Collector Power Dissipation	P_C	Ta = 25°C: Single DLT operation	1.5	W
Total Collector Power Dissipation	P_T	Ta = 25°C: 4-DLT operation	3.5	W
Total Collector Power Dissipation	P_T	Tc = 25°C: 4-DLT operation	17	W

(*) Fast recovery Diode

DLT: Darlington Transistor

ELECTRICAL CHARACTERISTICS

Single Darlington Transistor Operation

(Ta = 25°C)

Parameter	Symbol	Test Condition	Limit			Unit
			Min.	Typ.	Max.	
Collector to Base Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 100 \mu A, I_E = 0$	150	—	—	V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 70 \text{ mA}, I_C = 0$	5	—	—	V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10 \text{ mA}, R_{BE} = \infty$	100	—	—	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 100 \text{ V}, I_E = 0$	—	—	10	μA
DC Current Gain	h_{FE1}	$I_C = 0.75 A, V_{CE} = 5 \text{ V} (**)$	2000	6000	15000	—
	h_{FE2}	$I_C = 1.5 A, V_{CE} = 5 \text{ V} (**)$	500	—	—	—
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 0.75 A, I_B = 1.5 \text{ mA} (**)$	—	1.1	1.5	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$		—	1.6	2.0	V
Turn-On Time	t_{on}	$V_{CC} = 30 \text{ V} (***)$	—	0.5	—	μs
Storage Time	t_{stg}	$I_C = 0.75 A$	—	2.1	—	μs
Fall Time	t_f	$I_{B1} = -I_{B2} = 1.5 \text{ mA}$	—	0.4	—	μs

Single Fast Recovery Diode Operation (FT5763M Only)

(Ta = 25°C)

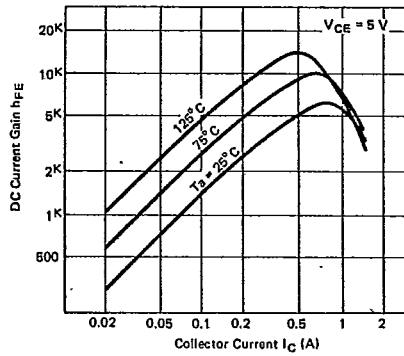
Parameter	Symbol	Test Condition	Limit			Unit
			Min.	Typ.	Max.	
Forward Voltage	V_F	$I_F = 100 \text{ mA}$	—	—	1.0	V
Reverse Current	I_R	$V_R = 100 \text{ V}$	—	—	5	μA
Reverse Voltage	V_R	$I_R = 10 \mu A$	110	—	—	V

(**) Pulsed
Pulse Width $\leq 300 \mu s$
Duty Ratio $\leq 6\%$ (***) Pulse
Pulse Width = 50 μs
Duty Ratio $\leq 1\%$

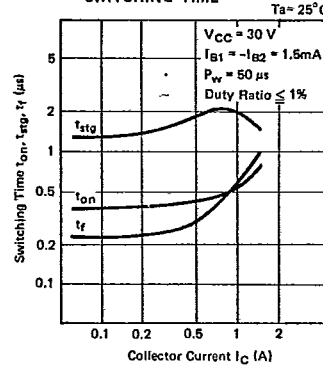
Copyright© 1990 by FUJITSU LIMITED and Fujitsu Microelectronics, Inc.

FT5763M, FT5766M

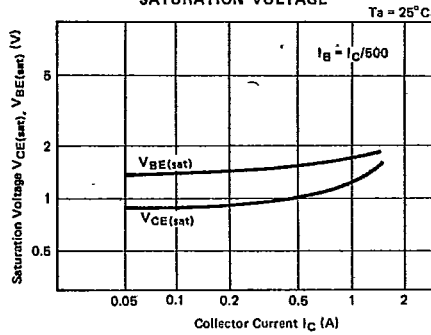
DC CURRENT GAIN



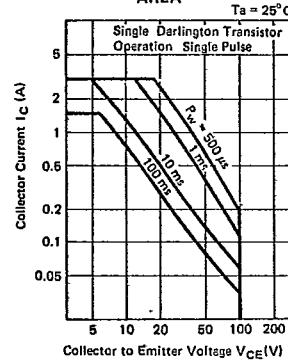
SWITCHING TIME



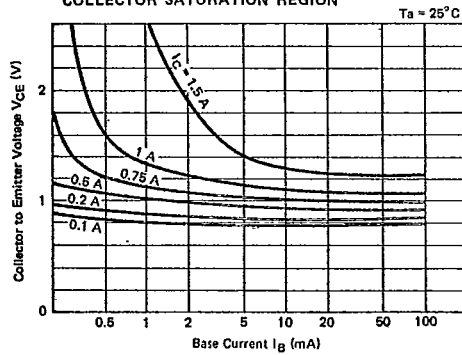
SATURATION VOLTAGE



FORWARD BIAS SAFE OPERATING AREA



COLLECTOR SATURATION REGION



POWER DISSIPATION DERATING

