T-43-25

January 1990
Edition 1.1

FUJITSU

PRODUCT PROFILE

FT5764M, FT5767M

Silicon Darlington Transistor Array

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		±3	A
	(Pulsed)	I_{CP}	$P_W \leqq 1$ ms, D.R. $\leqq 30\%$	±5	A
Base Current (Continuous)		I_B		0.2	A
Diode Forward Current		I_{FM}	$P_W \leqq 0.5$ ms, D.R. $\leqq 15\%$ (*)	3	A
		I_{FSM}	$P_W \leqq 100$ ms, Single Pulse (*)	5	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	1.7	W
Total Collector Power Dissipation		P_T	Ta = 25°C: 4-DLT operation	4	W
Total Collector Power Dissipation		P_T	Tc = 25°C: 4-DLT operation	19	W

(*) Fast recovery Diode DLT: Darlington Transistor

ELECTRICAL CHARACTERISTICS

Single Darlington Transistor Operation (Ta = 25°C)

Parameter	Symbol	Test Condition	Limit Min.	Limit Typ.	Limit Max.	Unit
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\ \mu A$, $I_E = 0$	150	–	–	V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 70$ mA, $I_C = 0$	5	–	–	V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10$ mA, $R_{BE} = \infty$	100	–	–	V
Collector Cutoff Current	I_{CBO}	$V_{CB} = 100$ V, $I_E = 0$	–	–	10	μA
DC Current Gain	h_{FE1}	$I_C = 1.5$ A, $V_{CE} = 5$ V (**)	2000	6000	15000	–
	h_{FE2}	$I_C = 3.0$ A, $V_{CE} = 5$ V (**)	500	–	–	–
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1.5$ A, $I_B = 3$ mA (**)	–	1.2	1.5	V
Base to Emitter Saturation Votage	$V_{BE(sat)}$		–	1.7	2.0	V
Turn-On Time	t_{on}	$V_{CC} = 30$ V (***) $I_C = 1.5$ A $I_{B1} = -I_{B2} = 3$ mA	–	0.6	–	μs
Storage Time	t_{stg}		–	1.8	–	μs
Fall Time	t_f		–	0.6	–	μs

Single Fast Recovery Diode Operation (FT5764M Only) (Ta = 25°C)

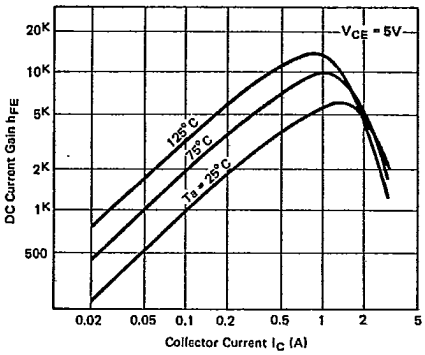
Parameter	Symbol	Test Condition	Limit Min.	Limit Typ.	Limit Max.	Unit
Forward Voltage	V_F	$I_F = 100$ mA	–	–	1.0	V
Reverse Current	I_R	$V_R = 100$ V	–	–	5	μA
Reverse Voltage	V_R	$I_R = 10\ \mu A$	110	–	–	V

(**) Pulsed Pulse Width $\leqq 300\ \mu s$ Duty Ratio $\leqq 6\%$

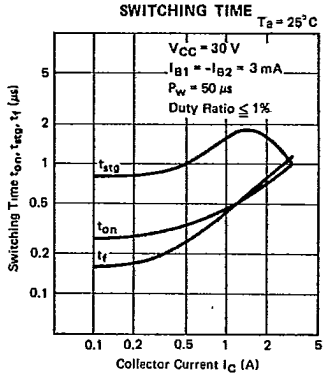
(***) Pulsed Pulse Width = 50 μs Duty Ratio $\leqq 1\%$

FT5764M, FT5767M

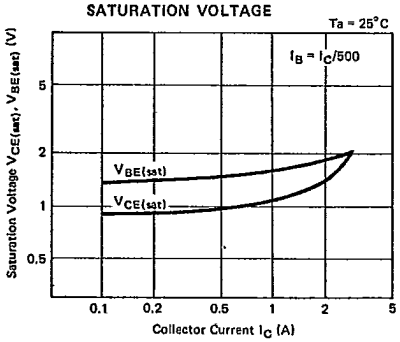
DC CURRENT GAIN



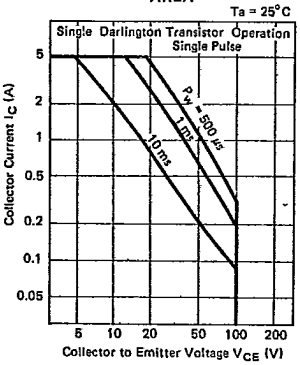
SWITCHING TIME



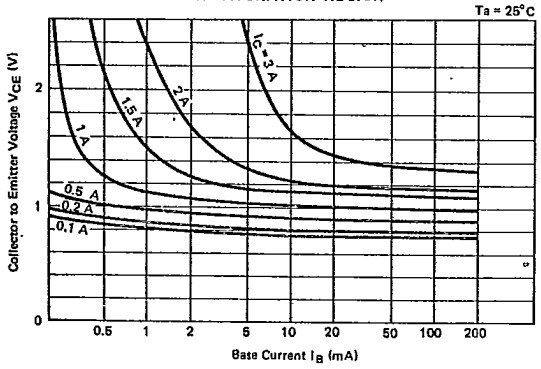
SATURATION VOLTAGE



FORWARD BIAS SAFE OPERATING AREA



COLLECTOR SATURATION REGION



POWER DISSIPATION DERATING