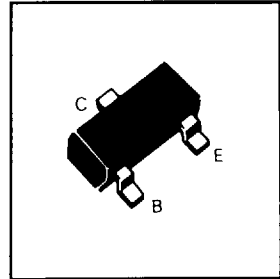


# SOT23 NPN SILICON PLANAR HIGH SPEED SWITCHING TRANSISTORS

## FMMT2369 FMMT2369A

### PARTMARKING DETAILS:

FMMT2369 – 1J  
FMMT2369A – P5  
FMMT2369R – 9R  
FMMT2369AR – 9A



### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	40	V
Collector-Emitter Voltage	$V_{CES}$	40	V
Collector-Emitter Voltage	$V_{CEO}$	15	V
Emitter-Base Voltage	$V_{EBO}$	4.5	V
Continuous Collector Current	$I_C$	200	mA
Power Dissipation at $T_{amb} = 25^\circ\text{C}$	$P_{TOT}$	330	W
Operating and Storage Temperature Range	$t_j:tstg$	- 55 to + 150	$^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	FMMT2369		FMMT2369A		UNIT	CONDITIONS
		MIN.	MAX.	MIN.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	40		40		V	$I_C = 10\mu\text{A}, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	15		15		V	$I_C = 10\text{mA}$
Collector-Emitter Breakdown Voltage	$V_{CES}$	40		40		V	$I_C = 10\mu\text{A}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	4.5		4.5		V	$I_E = 10\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$		400		25	nA	$V_{CB} = 20\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		0.25		0.20	V	$I_C = 10\text{mA}, I_B = 1\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	0.7	0.85	0.7	0.85	V	$I_C = 10\text{mA}, I_B = 1\text{mA}^*$
Static Forward Current Transfer Ratio	$H_{FE}$	40 20 20	120		40 20 120		$I_C = 10\text{mA}, V_{CE} = 1\text{V}$ $I_C = 10\text{mA}, V_{CE} = 1\text{V}$ $T_{amb} = 55^\circ\text{C}$ $I_C = 100\text{mA}, V_{CE} = 2\text{V}$ $I_C = 10\text{mA}, V_{CE} = 1\text{V}$ $I_C = 100\text{mA}, V_{CE} = 1\text{V}$
Output Capacitance	$C_{obo}$		4		4	pF	$V_{CB} = 5\text{V}, f = 140\text{KHz}$

\* Measured under pulsed conditions. Pulse width = 300 $\mu\text{s}$ . Duty cycle =  $\leq 2\%$

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## SWITCHING CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ )

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS
Turn-On Time	$t_{on}$		12	ns	$V_{CC} = 3\text{V}$ , $V_{BE(off)} = 1.5\text{V}$ $I_C = 10\text{mA}$ , $I_{B1} = 3\text{mA}$ (See fig. 1)
Turn-Off Time	$t_{off}$		18	ns	$V_{CC} = 3\text{V}$ , $I_C = 10\text{mA}$ , $I_{B1} = 3\text{mA}$ $I_{B2} = 1.5\text{mA}$ (See Fig. 2)
Storage Time	$t_s$		13	ns	$I_{B1} = I_{B2} = I_C = 10\text{mA}$ (See Fig. 3)

## CIRCUITS FOR MEASURING SWITCHING TIMES

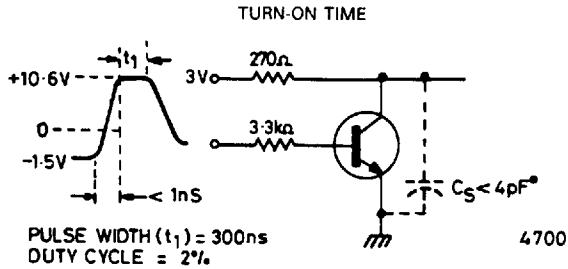


Fig. 1

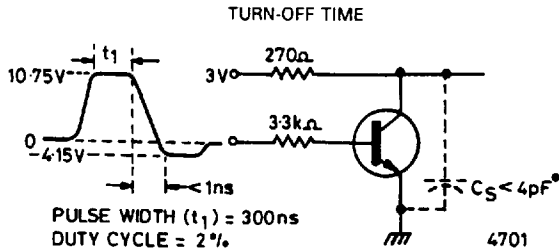


Fig. 2

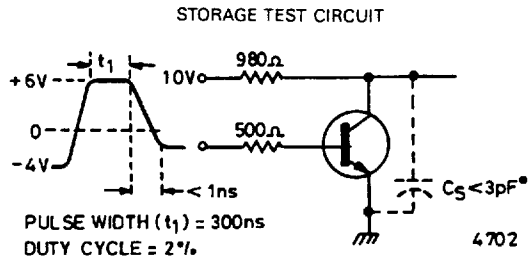


Fig. 3

● Total Shunt Capacitance of Test Jig and Connectors