

SOT23 N-CANNEL SILICON JUNCTION FIELD EFFECT TRANSISTORS

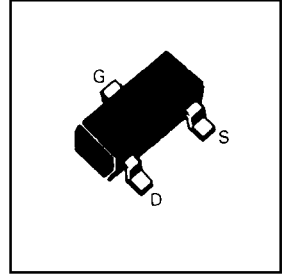
**FMMJ4391
to FMMJ4393**

PARTMARKING DETAILS:

FMMJ4391 – C91
FMMJ4392 – C92
FMMJ4393 – C93

APPLICATION AREAS:

- * LOW ON RESISTANCE SWITCHES
- * CHOPPERS



ABSOLUTE MAXIMUM RATINGS at T_{amb} = 25°C

Gate Drain or Gate-Source Voltage (Notes)	-40V
Continuous Forward Gate Current	50MA
Continuous Device Dissipation at (or below) T _{amb} = 25°C	225mW
Reverse Gate Source Voltage	40V

ELECTRICAL CHARACTERISTICS (25°C)

PARAMETER	SYMBOL	FMMJ4391		FMMJ4392		FMMJ4393		UNIT	TEST CONDITIONS
		Min.	Typ. Max.	Min.	Typ. Max.	Min.	Typ. Max.		
Gate Reverse Current	I _{GSS}	-1		-1		-1		nA	V _{GS} = -20V, V _{DS} = 0 150°C
		-1		-1		-1		μA	
Gate Source Breakdown Voltage	B _{V_{GS}}	-40		-40		-40		V	I _G = -1μA, V _{DS} = 0
Drain Cut-Off Current	I _{D(off)}					1.0		nA	V _{DS} 20V, V _{GS} = -5V V _{DS} 20V, V _{GS} = -7V V _{DS} = 20V, V _{GS} = -12V
		1.0		1.0				nA	
								nA	
Gate Source Forward Voltage	V _{GS(f)}	1		1		1		V	I _G = 1mA, V _{DS} = 0
Gate Source Cut-Off Voltage	V _{GS(off)}	-4	-10	-2	-5	-0.5	-3	V	V _{DS} = 20V, I _D = 1nA
Saturation Drain Current (Note 1)	I _{DSS}	50	150	25	75	5	30	mA	V _{DS} = 20V, V _{GS} = 0
Drain Source ON Voltage	V _{DS(on)}					0.4		V	V _{GS} = 0, I _D = 3mA V _{GS} = 0, I _D = 6mA V _{GS} = 0, I _D = 12mA
				0.4				V	
		0.4						V	
Static Drain Source Resistance	r _{DS(on)}	30		60		100		ohms	V _{GS} = 0, I _D = 1mA
Drain Source ON Resistance	r _{DS(on)}	30		60		100		ohms	V _{GS} = 0, I _D = 0 f = 1kHz
Common Source Input Capacitance	C _{iss}	14		14		14		pF	V _{DS} = 20V, V _{GS} = 0
Common Source Reverse Transfer Capacitance	C _{rss}					3.5		pF	V _{DS} = 0, V _{GS} = -5V, f = 1MHz V _{DS} = 0, V _{GS} = -7V, f = 1MHz V _{DS} = 0, V _{GS} = -12V, f = 1MHz
				3.5				pf	
		3.5						pF	
Turn On Delay Time	t _{d(on)}	15		7		15		ns	V _{DD} = 10V, V _{GS(on)} = 0 I _{D(on)} V _{GS(off)} R _L FMMJ4391 12mA -12V FMMJ4392 6mA 7V FMMJ4393 3mA 5V
Rise Time	t _r	5		5		5		ns	
Turn Off Delay Time	t _{d(off)}	20		35		50		ns	
Fall Time	t _f	15		20		30		ns	
		15		20		30		ns	

Notes: Pulse test duration = 300μs; duty cycle less than or equal to 3%.