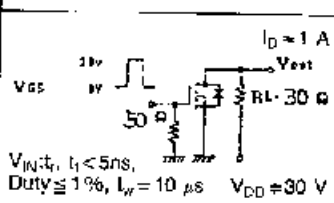


TOSHIBA FIELD EFFECT TRANSISTOR 2SK1717

SILICON N CHANNEL MOS TYPE
($L^2 - \pi - \text{MOS IV}$)

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Gate Leakage Current		I_{GSS}	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0 \text{ V}$	—	—	± 10	μA
Drain Cut-off Current		I_{DSS}	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$	—	—	100	μA
Drain-Source Breakdown Voltage		$V_{(DSS)}$	$I_D = 10 \text{ mA}, V_{GS} = 0 \text{ V}$	60	—	—	V
Gate Threshold Voltage		V_{th}	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ mA}$	0.8	—	2.0	V
Drain-Source ON Resistance		$R_{DS(ON)}$	$V_{GS} = 4 \text{ V}, I_D = 1 \text{ A}$	—	0.38	0.53	Ω
			$V_{GS} = 10 \text{ V}, I_D = 1 \text{ A}$	—	0.28	0.37	
Forward Transfer Admittance		$ Y_{fs} $	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ A}$	1.0	1.6	—	S
Input Capacitance		C_{iss}	$V_{DS} = 10 \text{ V}, V_{GS} = 0 \text{ V}, f = 1 \text{ MHz}$	—	125	180	pF
Reverse Transfer Capacitance		C_{rss}		—	30	60	
Output Capacitance		C_{oss}		—	85	130	
Switching Time	Rise Time	t_r	 <p>$I_D = 1 \text{ A}$ $V_{GS} = 10 \text{ V}$ $V_{GS} = 0 \text{ V}$ $R_L = 30 \Omega$ $V_{DD} = 30 \text{ V}$</p>	—	30	60	nS
	Turn-on Time	t_{on}		—	60	120	
	Fall Time	t_f		—	40	80	
	Turn-off Time	t_{off}		—	135	270	
Total Gate Charge (Gate-Source Plus Gate-Drain)		Q_g	$V_{DD} = 18 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 2 \text{ A}$	—	6.5	13	nC
Gate-Source Charge		Q_{gs}	$V_{DD} = 18 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 2 \text{ A}$	—	4.5	—	
Gate-Drain ("Miller") Charge		Q_{gd}		—	2.0	—	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (Ta = 25 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Continuous Drain Reverse Current	I_{DR}	—	—	—	2	A
Pulse Drain Reverse Current	I_{DRP}	—	—	—	6	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 2 \text{ A}, V_{GS} = 0 \text{ V}$	—	—	≈ 1.5	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 2 \text{ A}, V_{GS} = 0 \text{ V}$	—	75	—	nS
Reverse Recovery Charge	Q_{rr}	$df_{DR}/dt = 50 \text{ A}/\mu\text{s}$	—	75	—	μC

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