

MMFTN20

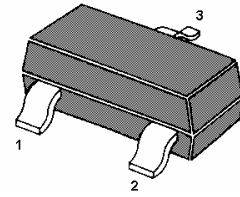
N-Channel Enhancement Vertical D-MOS Transistor

Features

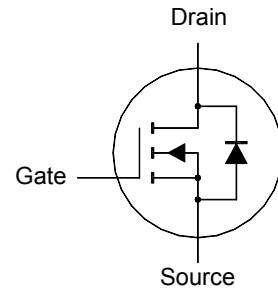
- High-speed switching
- No secondary breakdown

Applications

- Thin and thick film circuits
- General purpose fast switching applications



1. Gate 2. Source 3. Drain
SOT-23 Plastic Package



Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$ unless otherwise specified)

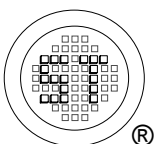
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage (open drain)	V_{GSO}	± 20	V
Drain Current	I_D	100	mA
Peak Drain Current	I_{DM}	300	mA
Total Power Dissipation	$P_{tot}^{1)}$	300	mW
	$P_{tot}^{2)}$	250	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_s	- 65 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	430 ¹⁾	K/W
	$R_{\theta JA}$	500 ²⁾	K/W

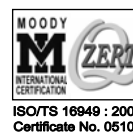
¹⁾ Device mounted on a ceramic substrate 10 X 8 X 0.7 mm.

²⁾ Device mounted on a printed-circuit board.



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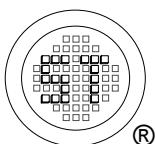


Dated: 01/06/2006

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Characteristics at $T_a = 25\text{ }^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Min.	Max.	Unit
Drain-Source Breakdown Voltage at $I_D = 10\text{ }\mu\text{A}$	$V_{(BR)DSS}$	50	-	V
Drain-Source Leakage Current at $V_{DS} = 40\text{ V}$	I_{DSS}	-	1	μA
Gate-Source Leakage Current at $V_{GS} = \pm 20\text{ V}$	I_{GSS}	-	± 100	nA
Gate-Source Threshold Voltage at $V_{DS} = V_{GS}$, $I_D = 1\text{ mA}$	$V_{GS(th)}$	0.4	1.8	V
Drain-Source On-State Resistance at $V_{GS} = 10\text{ V}$, $I_D = 100\text{ mA}$ at $V_{GS} = 5\text{ V}$, $I_D = 100\text{ mA}$ at $V_{GS} = 2.5\text{ V}$, $I_D = 10\text{ mA}$	$R_{DS(on)}$	- - -	15 20 30	Ω
Forward Transfer Admittance at $V_{DS} = 10\text{ V}$, $I_D = 100\text{ mA}$	$ y_{fs} $	40	-	mS
Input Capacitance at $V_{DS} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{iss}	-	15	pF
Output Capacitance at $V_{DS} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{oss}	-	15	pF
Reverse Transfer Capacitance at $V_{DS} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{rss}	-	5	pF
Turn-On Time at $V_{GS} = 0$ to 10 V , $V_{DD} = 20\text{ V}$, $I_D = 100\text{ mA}$	$t_{(on)}$	-	5	ns
Turn-Off Time at $V_{GS} = 10$ to 0 V , $V_{DD} = 20\text{ V}$, $I_D = 100\text{ mA}$	$t_{(off)}$	-	10	ns



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