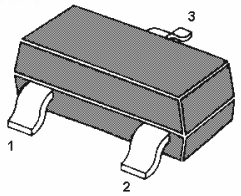
MMFTN20

N-Channel Enhancement Vertical D-MOS Transistor

Features

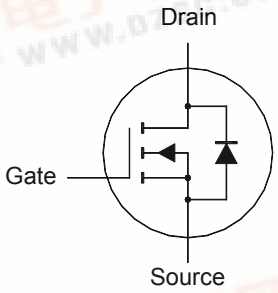
- High-speed switching
- No secondary breakdown



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

Applications

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



Absolute Maximum Ratings (T_a = 25 °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	°C
Storage Temperature Range	T_s	- 65 to + 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Juntion 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.

Characteristics at T_a = 25 °C unless otherwise specified

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