

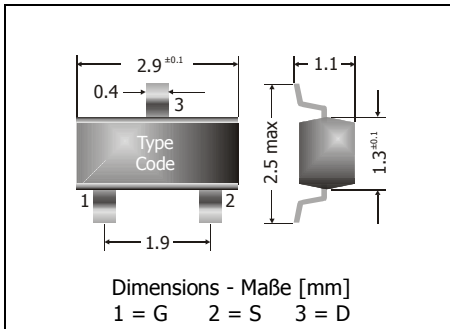
## MMFTN138

N

**N-Channel Logic Level Enhancement Mode Field Effect Transistor**  
**N-Kanal Logikpegel Feldeffekt-Transistor - Anreicherungstyp**

N

Version 2011-01-24



Power dissipation – Verlustleistung

360 mW

Plastic case  
KunststoffgehäuseSOT-23  
(TO-236)

Weight approx. – Gewicht ca.

0.01 g

Plastic material has UL classification 94V-0  
Gehäusematerial UL94V-0 klassifiziertStandard packaging taped and reeled  
Standard Lieferform getupet auf Rolle

### Maximum ratings (T<sub>A</sub> = 25°C)

### Grenzwerte (T<sub>A</sub> = 25°C)

		<b>MMFTN138</b>	
Drain-Source-voltage – Drain-Source-Spannung	V <sub>DSS</sub>	50 V	
Drain-Gate-voltage (R <sub>GS</sub> ≤ 20 kΩ ) Drain-Gate-Spannung	V <sub>DGR</sub>	50 V	
Gate-Source-voltage Gate-Source-Spannung	dc V <sub>GSS</sub> t <sub>p</sub> < 50 μs V <sub>GSS</sub>	± 20 V ± 40 V	
Power dissipation – Verlustleistung	P <sub>tot</sub>	360 mW	
Drain current continuous – Drainstrom (dc)	I <sub>D</sub>	220 mA	
Peak Drain current – Drain-Spitzenstrom	I <sub>DM</sub>	880 mA	
Junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur	T <sub>j</sub> T <sub>s</sub>	150°C -55...+150°C	

**Characteristics (T<sub>j</sub> = 25°C)****Kennwerte (T<sub>j</sub> = 25°C)**

		<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>
Drain-Source breakdown voltage – Drain-Source-Durchbruchspannung I <sub>D</sub> = 250 μA	V <sub>(BR)DSS</sub>	50 V		
Drain-Source leakage current – Drain-Source-Leckstrom V <sub>DS</sub> = 50 V V <sub>DS</sub> = 30 V	I <sub>DSS</sub>			500 nA 100 nA
Gate-Source leakage current – Gate-Source-Leckstrom V <sub>GS</sub> = ± 20 V	I <sub>GSS</sub>			± 100 nA
Gate-Source threshold voltage – Gate-Source Schwellspannung V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> = 1 mA	V <sub>GS(th)</sub>	0.8 V		1.6 V
Drain-Source on-state resistance – Drain-Source Einschaltwiderstand V <sub>GS</sub> = 10 V, I <sub>D</sub> = 220 mA V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 220 mA	R <sub>DS(on)</sub>			3.5 Ω 6 Ω
Forward Transconductance – Übertragungssteilheit V <sub>DS</sub> = 10 V, I <sub>D</sub> = 220 mA	g <sub>FS</sub>	0.12 S		
Input Capacitance – Eingangskapazität V <sub>DS</sub> = 25 V, f = 1 MHz	C <sub>iss</sub>		60 pF	
Output Capacitance – Ausgangskapazität V <sub>DS</sub> = 25 V, f = 1 MHz	C <sub>oss</sub>		25 pF	
Reverse Transfer Capacitance – Rückwirkungskapazität V <sub>DS</sub> = 25 V, f = 1 MHz	C <sub>rss</sub>		10 pF	
Turn-On Delay Time – Einschaltverzögerung V <sub>DD</sub> = 30 V, I <sub>D</sub> = 290 mA, V <sub>GS</sub> = 10 V, R <sub>G</sub> = 50 Ω	t <sub>d(on)</sub>			8 ns
Turn-On Rise Time – Anstiegszeit V <sub>DD</sub> = 30 V, I <sub>D</sub> = 290 mA, V <sub>GS</sub> = 10 V, R <sub>G</sub> = 50 Ω	t <sub>r</sub>			12 ns
Turn-Off Delay Time – Ausschaltverzögerung V <sub>DD</sub> = 30 V, I <sub>D</sub> = 290 mA, V <sub>GS</sub> = 10 V, R <sub>G</sub> = 50 Ω	t <sub>d(off)</sub>			16 ns
Turn-Off Fall Time – Abfallzeit V <sub>DD</sub> = 30 V, I <sub>D</sub> = 290 mA, V <sub>GS</sub> = 10 V, R <sub>G</sub> = 50 Ω	t <sub>f</sub>			22 ns
Thermal resistance junction to ambient air Wärmewiderstand Sperrschicht – umgebende Luft	R <sub>thA</sub>	< 350 K/W		

**Drain-Source Diode****Maximum Ratings and Characteristics (T<sub>j</sub> = 25°C)****Grenz- und Kennwerte (T<sub>j</sub> = 25°C)**

		<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>
Maximum Continuous Source Current	I <sub>S</sub>			220 mA
Maximum Pulse Source Current	I <sub>SM</sub>			880 mA
Drain-Source Diode Forward Voltage I <sub>S</sub> = 440 mA	V <sub>GD</sub>			1.4 V