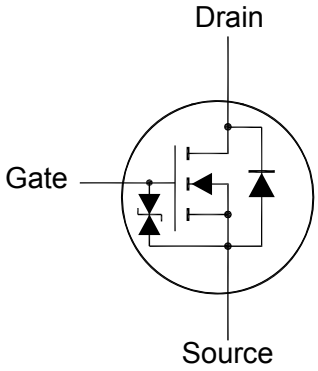
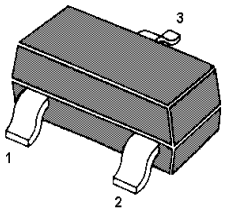
MMFTN139-AH

N-Channel Enhancement Mode MOSFET





1. Gate 2. Source 3. Drain
TO-236 Plastic Package

Features

- AEC-Q101 Qualified and PPAP Capable
- Halogen and Antimony Free(HAF), RoHS compliant

Absolute Maximum Ratings(T_a = 25℃)

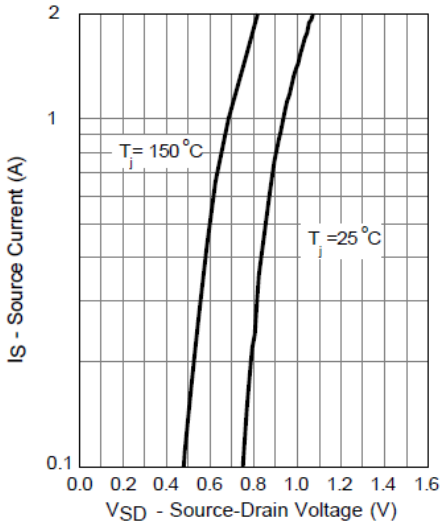
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	200	mA
Peak Drain Current (t ≤ 10 μs)	I_{DM}	800	mA
Power Dissipation [1)]	P_D	225	mW
Thermal Resistance, Junction to Ambient [1)]	$R_{\theta JA}$	556	℃/W
Operating Junction Temperature Range	T_j	- 55 to + 150	℃
Storage Temperature Range	T_{stg}	- 55 to + 150	℃

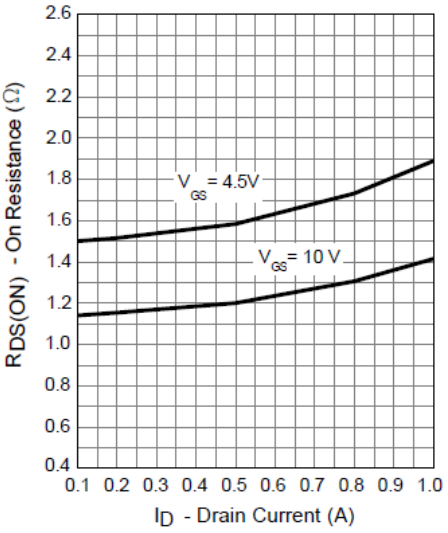
[1)] FR–4 = 1.0×0.75×0.062 in.

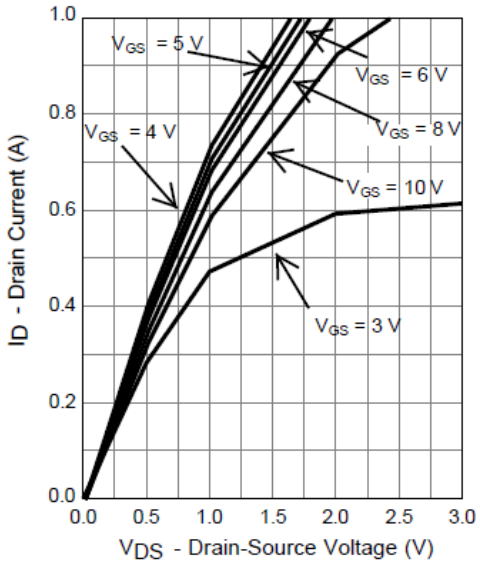
Characteristics at T_a= 25℃ unless otherwise specified

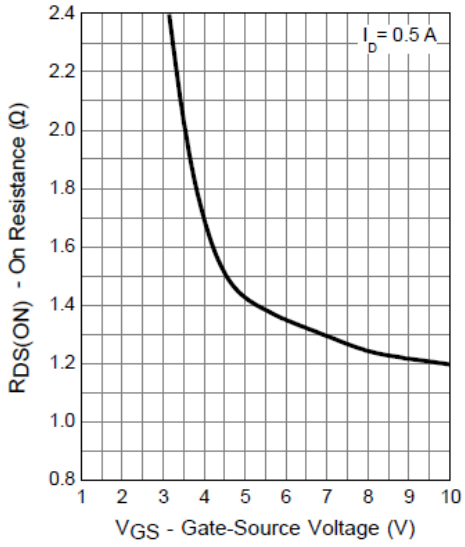
Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at I_D = 250 μA	$V_{(BR)DSS}$	50	-	-	V
Zero Gate Voltage Drain Current at V_{DS} = 25 V at V_{DS} = 50 V	I_{DSS}	- -	- -	0.1 0.5	μA
Gate-Source Leakage at V_{GS} = ± 20 V	I_{GSS}	-	-	± 10	μA
Gate-Source Threshold Voltage at V_{DS} = V_{GS}, I_D = 1 mA	$V_{GS(th)}$	0.5	-	1.5	V
Drain-Source On-State Resistance at V_{GS} = 5 V, I_D = 200 mA	$R_{DS(on)}$	-	-	3.5	Ω
Forward Transconductance at V_{DS} = 25 V, I_D = 200 mA , f = 1 MH_Z	g_{FS}	100	-	-	mS
Input Capacitance at V_{DS} = 25 V, V_{GS} = 0 V, f = 1 MH_Z	C_{iss}	-	22.8	-	pF
Output Capacitance at V_{DS} = 25 V, V_{GS} = 0 V, f = 1 MH_Z	C_{oss}	-	3.5	-	pF
Reverse Transfer Capacitance at V_{DS} = 25 V, V_{GS} = 0 V, f = 1 MH_Z	C_{rss}	-	2.9	-	pF
Turn-On Delay Time [2)] at V_{DS} = 30 V, I_D = 0.5 A	$t_{d(on)}$	-	3.8	-	ns
Turn-Off Delay Time [2)] at V_{DS} = 30 V, I_D = 0.5 A	$t_{d(off)}$	-	19	-	ns

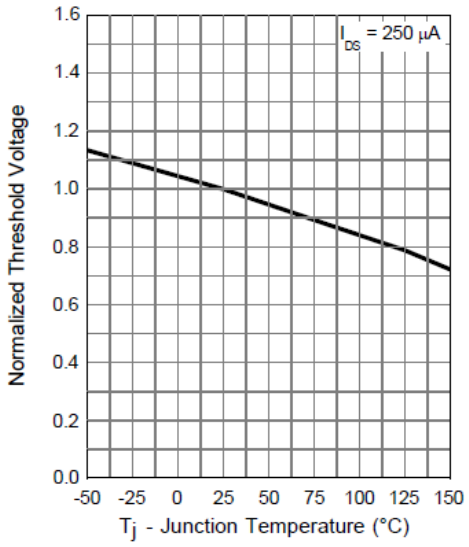
[2)] Switching characteristics are independent of operating junction temperature.


IS - Source Current (A)
VSD - Source-Drain Voltage (V)
Tj= 150 °C
Tj =25 °C

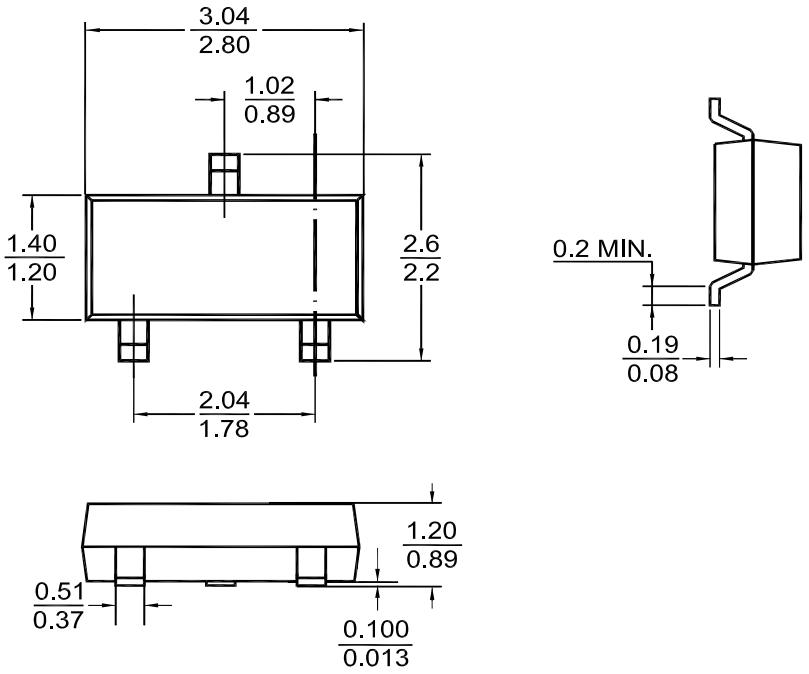

RDS(ON) - On Resistance (Ω)
ID - Drain Current (A)
VGS = 4.5V
VGS= 10 V


ID - Drain Current (A)
VDS - Drain-Source Voltage (V)
VGS = 5 V
VGS = 6 V
VGS = 4 V
VGS = 8 V
VGS = 10 V
VGS = 3 V

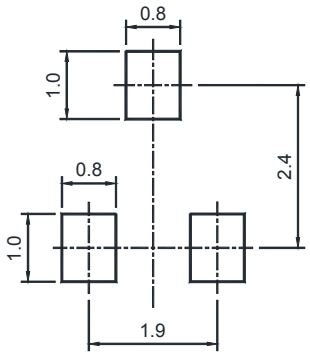

RDS(ON) - On Resistance (Ω)
VGS - Gate-Source Voltage (V)
ID = 0.5 A


Normalized Threshold Voltage
Tj - Junction Temperature (°C)
IDS = 250 µA

Package Outline (Dimensions in mm) TO-236



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
TO-236	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000