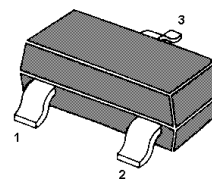
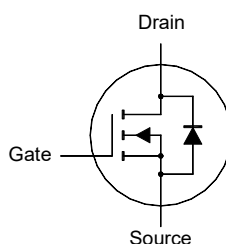


# MMFTN170

## N-Channel Enhancement Mode Field Effect Transistor

### Feature

- Voltage controlled small signal switch
- High saturation current capability



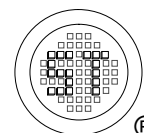
1. Gate 2. Source 3. Drain  
SOT-23 Plastic Package

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DSS}$	60	V
Drain-Gate Voltage ( $R_{GS} \leq 1 \text{ M}\Omega$ )	$V_{DGR}$	60	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current - Continuous	$I_D$	500	mA
Peak Drain Current, Pulsed	$I_{DM}$	800	mA
Total Power Dissipation	$P_{tot}$	300	mW
Operating and Storage Temperature Range	$T_j, T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit
<b>STATIC PARAMETERS</b>					
Drain-Source Breakdown Voltage at $I_D = 100 \mu\text{A}$	$V_{(BR)DSS}$	60	-	-	V
Zero Gate Voltage Drain Current at $V_{DS} = 25 \text{ V}$	$I_{DSS}$	-	-	0.5	$\mu\text{A}$
Gate-Body Leakage, Forward at $V_{GS} = 15 \text{ V}$	$I_{GSSF}$	-	-	10	nA
Gate-Source Threshold Voltage at $V_{DS} = V_{GS}, I_D = 1 \text{ mA}$	$V_{GS(th)}$	0.8	-	3	V
Drain-Source On-State Resistance at $V_{GS} = 10 \text{ V}, I_D = 200 \text{ mA}$	$R_{DS(on)}$	-	-	5	$\Omega$
Forward Transconductance at $V_{DS} \geq 2 V_{DS(on)}, I_D = 200 \text{ mA}$	$g_{FS}$	-	320	-	mS
<b>DYNAMIC PARAMETERS</b>					
Input Capacitance at $V_{DS} = 10 \text{ V}, f = 1 \text{ MHz}$	$C_{iss}$	-	-	40	pF
Output Capacitance at $V_{DS} = 10 \text{ V}, f = 1 \text{ MHz}$	$C_{oss}$	-	-	30	pF
Reverse Transfer Capacitance at $V_{DS} = 10 \text{ V}, f = 1 \text{ MHz}$	$C_{rss}$	-	-	10	pF
Turn-On Time at $V_{DD} = 25 \text{ V}, I_D = 500 \text{ mA}, V_{GS} = 10 \text{ V}, R_{GEN} = 50 \Omega$	$t_{d(on)}$	-	-	10	ns
Turn-Off Delay Time at $V_{DD} = 25 \text{ V}, I_D = 500 \text{ mA}, V_{GS} = 10 \text{ V}, R_{GEN} = 50 \Omega$	$t_{d(off)}$	-	-	10	ns



# MMFTN170

## Ratings and Electrical Characteristics Curves

Fig 1. On-Region Characteristics

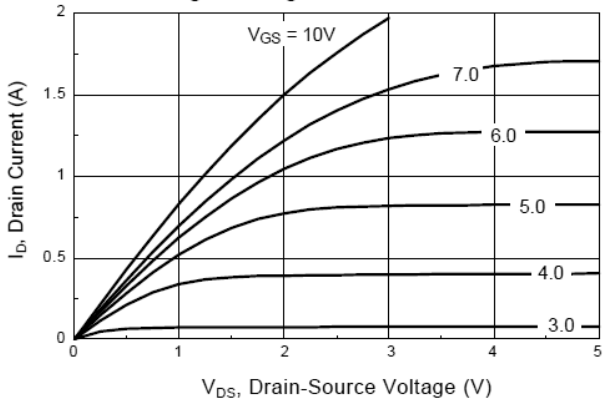


Fig 2. Transfer Characteristics

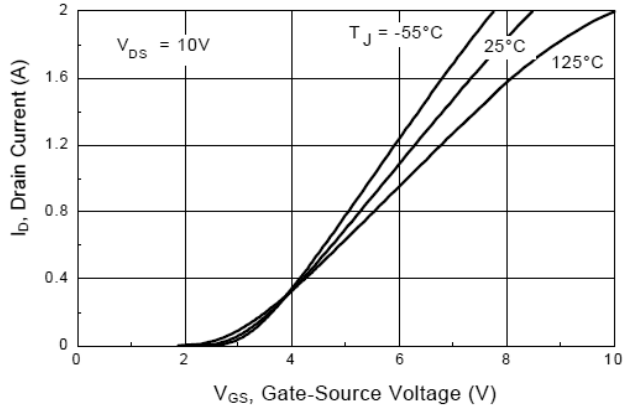


Fig 3. On-Resistance Variation with Gate Voltage and Drain Current

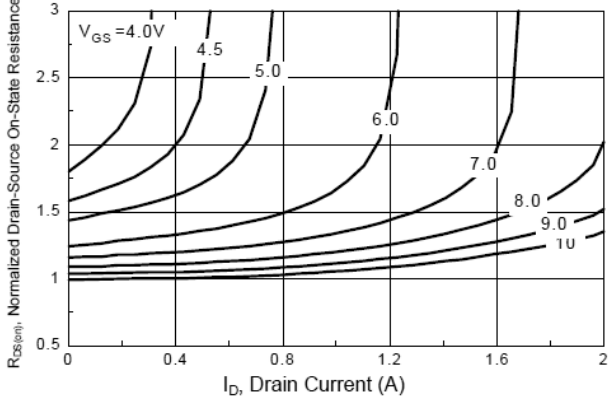


Fig 4. On-Resistance Variation with Temperature

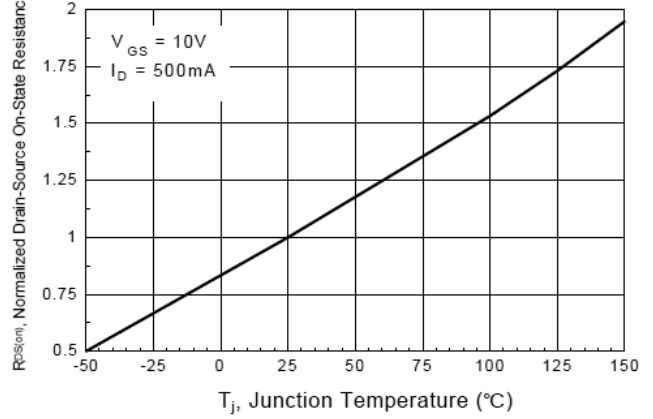


Fig 5. On-Resistance Variation with Drain Current and Temperature

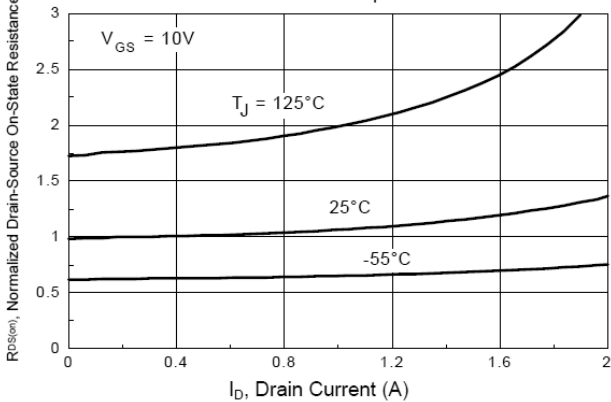
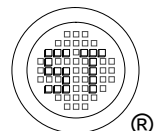
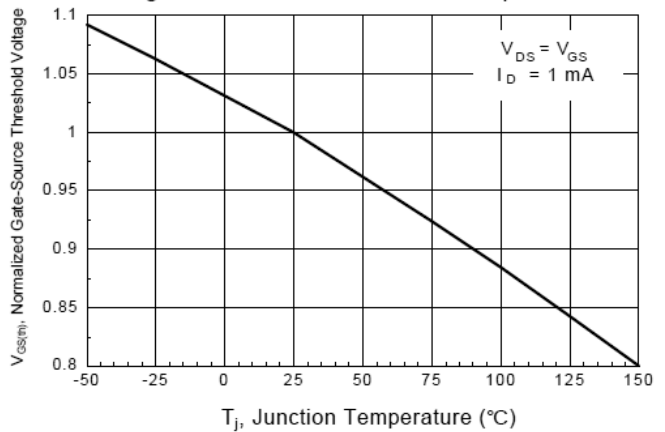


Fig 6. Gate Threshold Variation with Temperature



# MMFTN170

## Ratings and Electrical Characteristics Curves

Fig 7. Breakdown Voltage Variation with Temperature

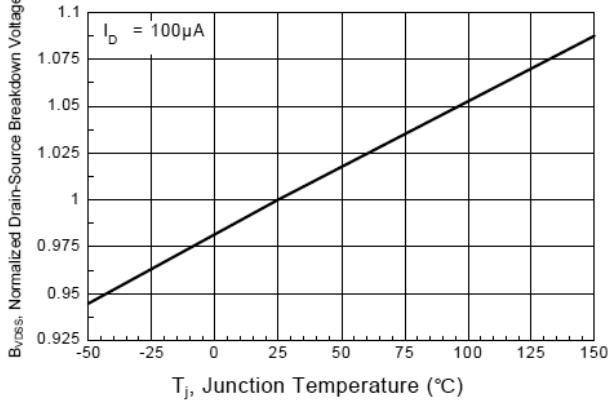


Fig 8. Capacitance Characteristics

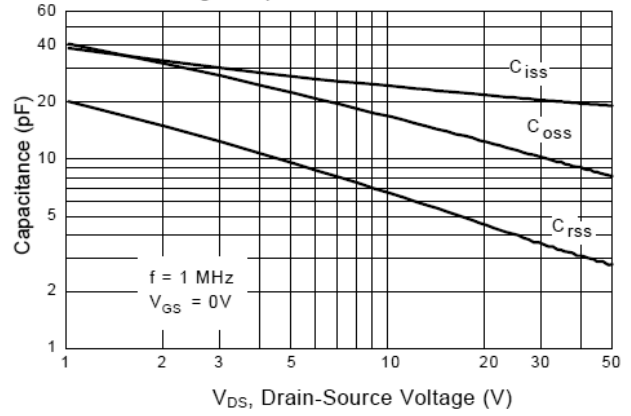
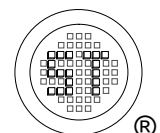
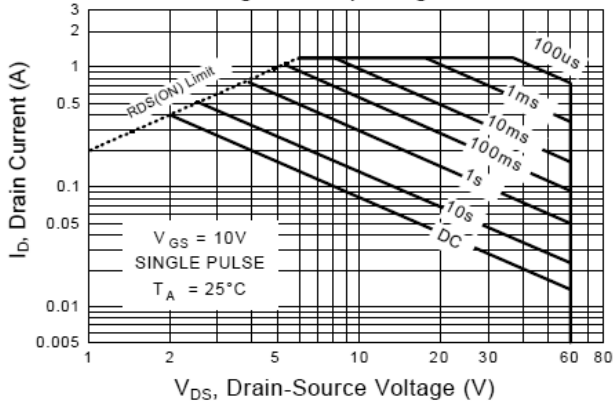


Fig 9. Safe Operating Area



## Test Circuits

Fig.1-1 Switching times test circuit

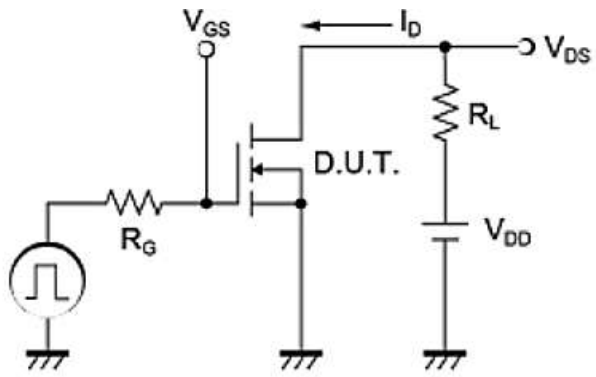
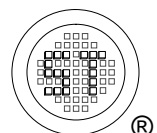
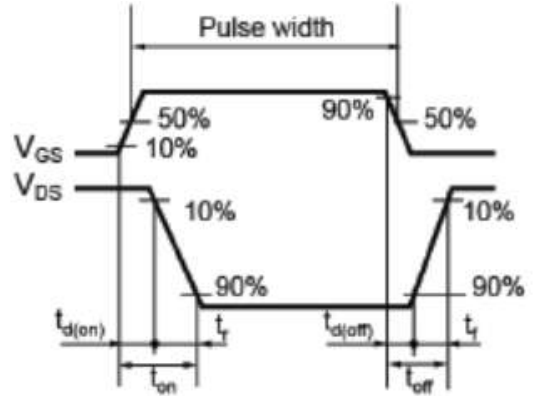


Fig.1-2 Switching Waveform

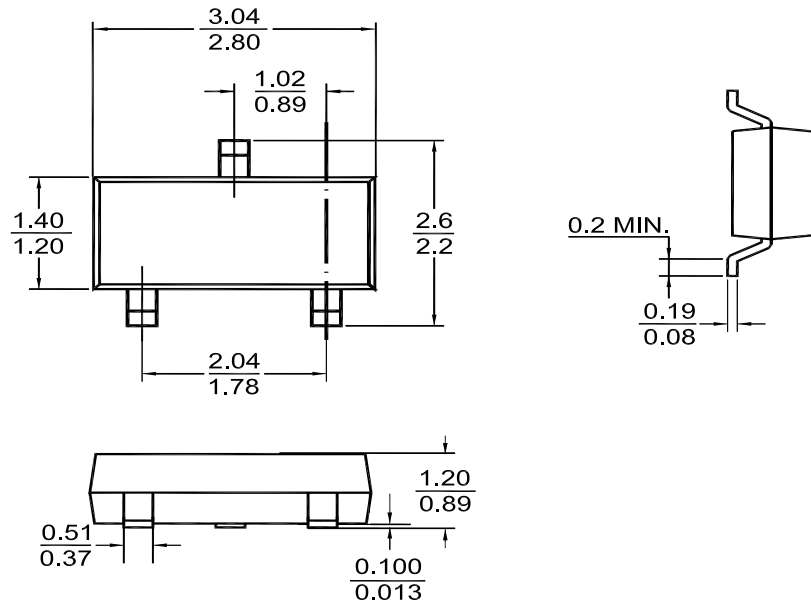


# MMFTN170

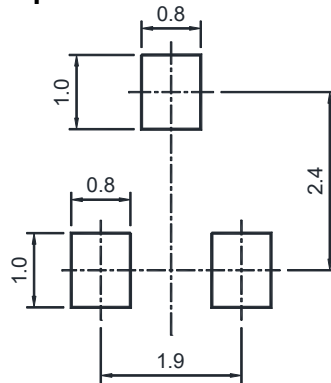
## PACKAGE OUTLINE

Plastic surface mounted package (Dimensions in mm)

SOT-23



### Recommended Soldering Footprint



### Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-23	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

### Marking information

- "JD" = Part No.
- "YM" = Date Code Marking
- "Y" = Year
- "M" = Month
- Font type: Arial

