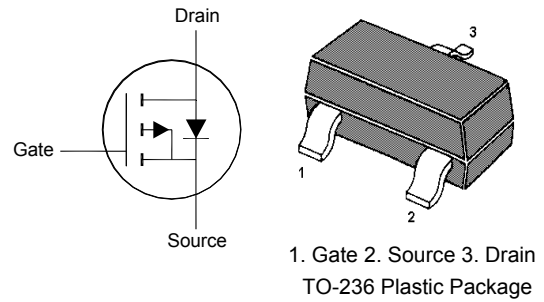


MMFTP2319-AH

P-Channel Enhancement Mode Power MOSFET

Features

- AEC-Q101 is Available
- Halogen and Antimony Free(HAF), RoHS compliant



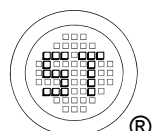
Absolute Maximum Ratings($T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($t = 5 \text{ s}$) ¹⁾	$-I_D$	$T_c = 25^\circ\text{C}$ 4.4	A
		$T_a = 25^\circ\text{C}$ 3.1	
Pulsed Drain Current ¹⁾	$-I_{DM}$	20	A
Power Dissipation ($t = 5 \text{ s}$) ¹⁾	P_D	$T_a = 25^\circ\text{C}$ 1.25	W
		$T_a = 70^\circ\text{C}$ 0.8	
Operating Junction Temperature Range	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Thermal Resistance Junction to Ambient ¹⁾	$R_{\theta JA}$	$t = 5 \text{ s}$ 100	$^\circ\text{C/W}$
		Stead-State 166	

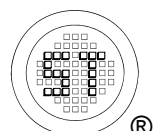
¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.



MMFTP2319-AH

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Breakdown Voltage at $-I_D = 250\ \mu\text{A}$	$-V_{(BR)DSS}$	40	-	-	V
Zero Gate Voltage Drain Current at $-V_{DS} = 40\ \text{V}$	$-I_{DSS}$	-	-	1	μA
Gate-Source Leakage at $V_{GS} = \pm 20\ \text{V}$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage at $V_{DS} = V_{GS}$, $-I_D = 250\ \mu\text{A}$	$-V_{GS(th)}$	1	-	3	V
Drain-Source On-State Resistance at $-V_{GS} = 10\ \text{V}$, $-I_D = 3.1\ \text{A}$ at $-V_{GS} = 4.5\ \text{V}$, $-I_D = 2.6\ \text{A}$	$R_{DS(on)}$	- -	- -	80 120	m Ω
Forward Transconductance at $-V_{DS} = 15\ \text{V}$, $-I_D = 3.1\ \text{A}$	g_{fs}	-	10	-	S
DYNAMIC PARAMETERS					
Input Capacitance at $-V_{DS} = 20\ \text{V}$, $V_{GS} = 0\ \text{V}$, $f = 1\ \text{MHz}$	C_{iss}	-	1101	-	pF
Output Capacitance at $-V_{DS} = 20\ \text{V}$, $V_{GS} = 0\ \text{V}$, $f = 1\ \text{MHz}$	C_{oss}	-	76	-	pF
Reverse Transfer Capacitance at $-V_{DS} = 20\ \text{V}$, $V_{GS} = 0\ \text{V}$, $f = 1\ \text{MHz}$	C_{rss}	-	68	-	pF
Turn-On Rise Time at $-V_{DS} = 20\ \text{V}$, $-I_D = 2.5\ \text{A}$, $-V_{GEN} = 10\ \text{V}$, $R_L = 8\ \Omega$	$t_{d(on)}$	-	8	-	ns
Turn-On Rise Time at $-V_{DS} = 20\ \text{V}$, $-I_D = 2.5\ \text{A}$, $-V_{GEN} = 10\ \text{V}$, $R_L = 8\ \Omega$	t_r	-	9	-	ns
Turn-Off Delay Time at $-V_{DS} = 20\ \text{V}$, $-I_D = 2.5\ \text{A}$, $-V_{GEN} = 10\ \text{V}$, $R_L = 8\ \Omega$	$t_{d(off)}$	-	20	-	ns
Turn-Off Fall Time at $-V_{DS} = 20\ \text{V}$, $-I_D = 2.5\ \text{A}$, $-V_{GEN} = 10\ \text{V}$, $R_L = 8\ \Omega$	t_f	-	8	-	ns
Body-Diode PARAMETERS					
Body Diode Voltage at $-I_S = 2.5\ \text{A}$, $V_{GS} = 0\ \text{V}$	$-V_{SD}$	-	-	1.5	V



Ratings and Electrical Characteristics Curves

Fig.1 Typical Output Characteristic

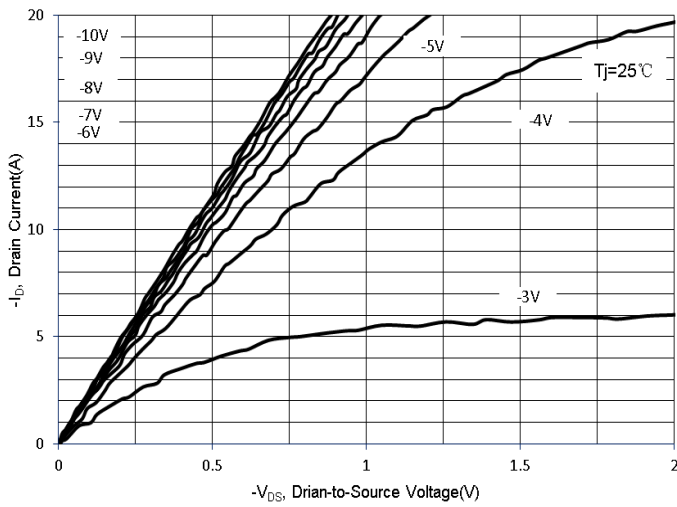


Fig. 2 Typical Transfer Characteristic

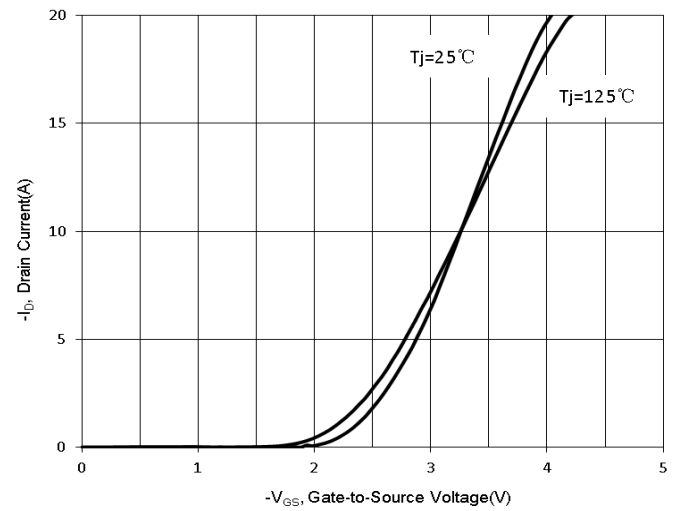


Fig.3 on-Resistance vs.Junction Temperature

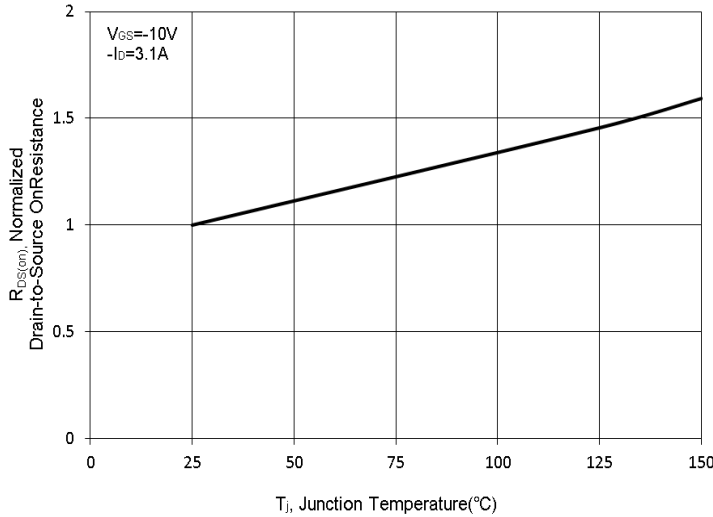


Fig. 4 Static Drain Source on-Resistance

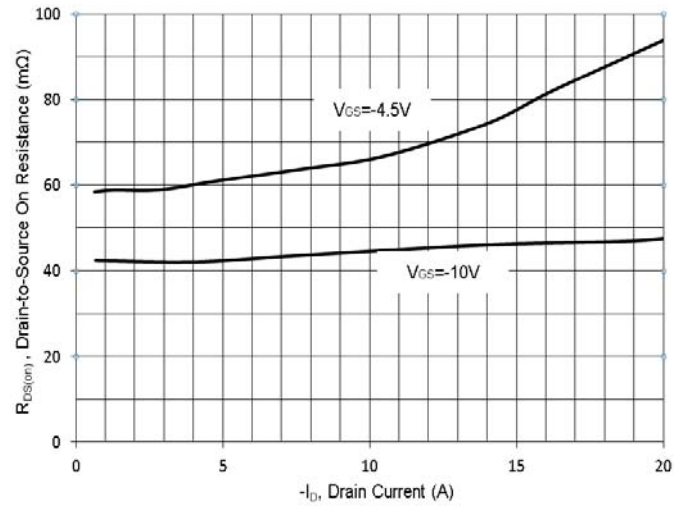


Fig.5 on-Resistance vs.Junction Temperature

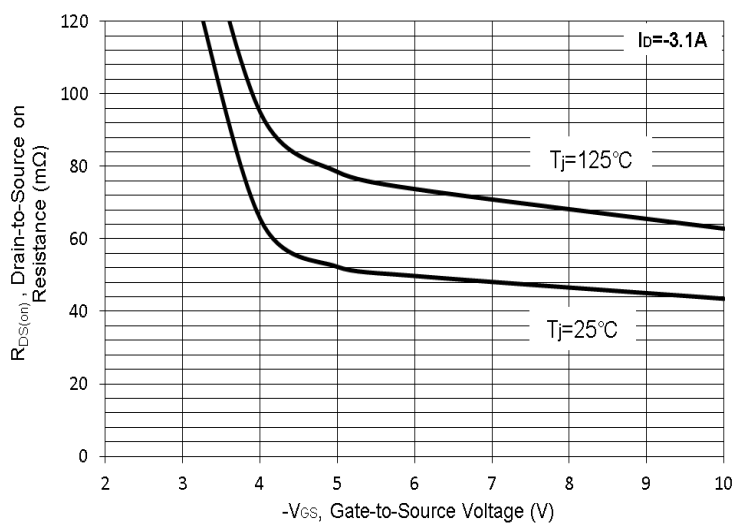
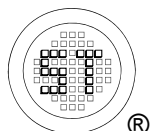
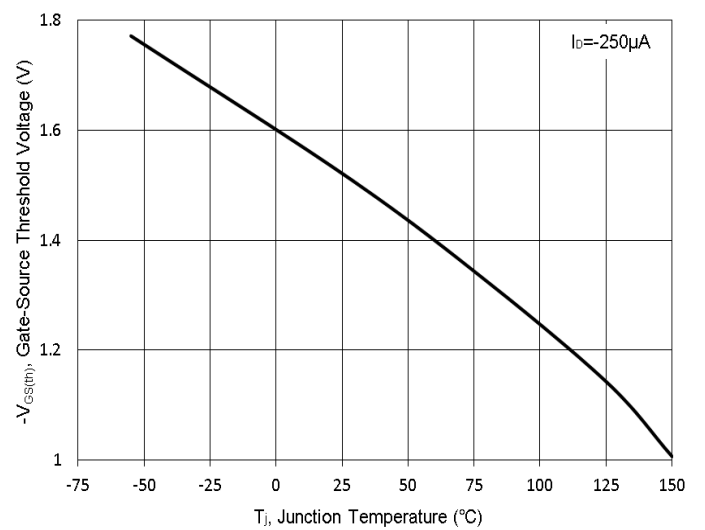


Fig. 6 Gate Threshold Variation vs. Junction Temperature



Ratings and Electrical Characteristics Curves

Fig.7 Breakdown Voltage vs. Junction Temperature

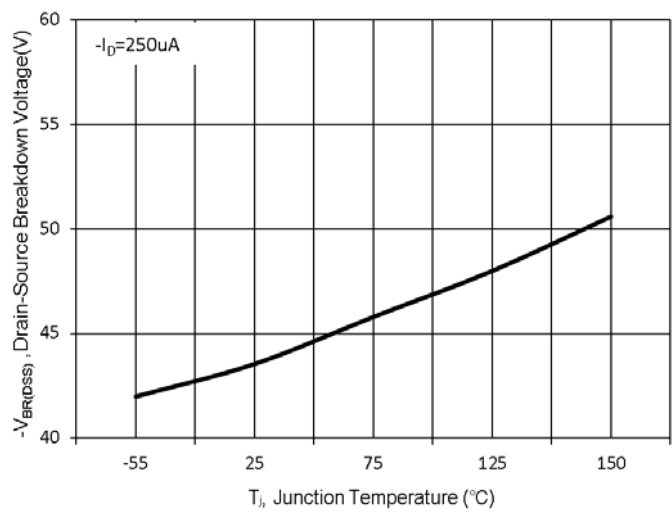
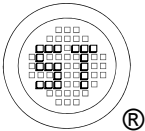
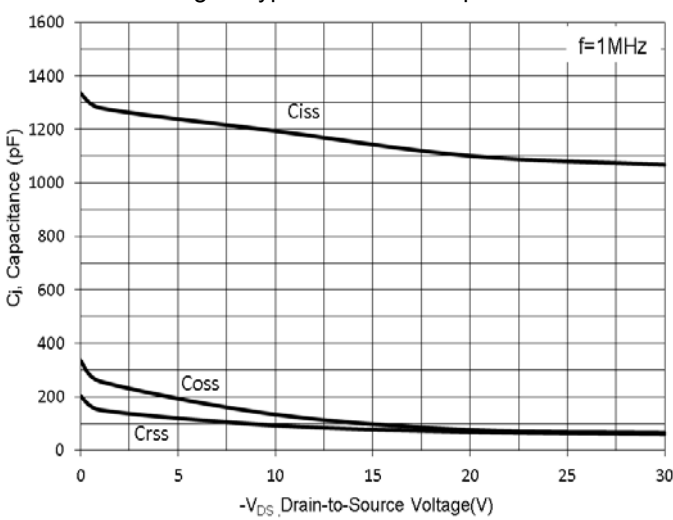
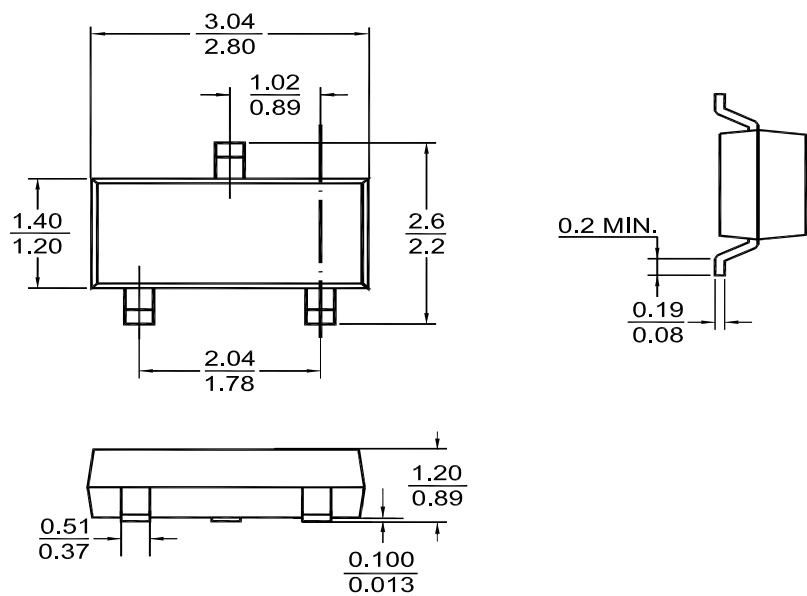


Fig. 8 Typical Junction Capacitance

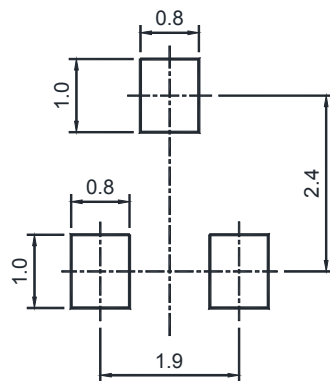


Package Outline (Dimensions in mm)

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

Marking information

" UJ " = Part No.
" • " = HAF (Halogen and Antimony Free)
" YM " = Date Code Marking
" Y " = Year
" M " = Month
Font type: Arial

