



MMBF170

Power MOSFET

0.5A, 60V N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

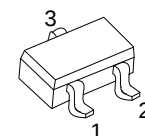
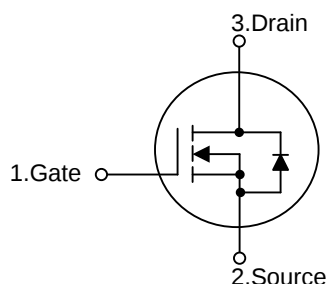
DESCRIPTION

The UTC **MMBF170** is an N-channel enhancement MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, low input capacitance, low gate threshold voltage and high switching speed.

FEATURES

- * $R_{DS(ON)} \leq 5.0 \Omega$ @ $V_{GS}=10V$, $I_D=0.2A$
- * High Switching Speed
- * Low Input Capacitance (typical 22pF)

SYMBOL



SOT-23-3
(JEDEC TO-236)

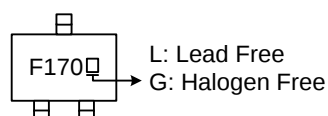
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBF170L-AE2-R	MMBF170G-AE2-R	SOT-23-3	G	S	D	Tape Reel

Note: Pin Assignment: G: Gate S: Source D: Drain

MMBF170G-AE2-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE2: SOT-23-3
	(3)Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	60	V
Gate-Source Voltage	Continuous	V _{GSS}	±20	V
	Pulsed		±40	V
Drain-Gate Voltage R _{GS} ≤1.0MΩ		V _{DGR}	60	V
Drain Current (Note 2)	Continuous	I _D	500	mA
	Pulsed	I _{DM}	800	mA
Power Dissipation (Note 2)		P _D	225	mW
Derating above T _A =25°C (Note 2)			1.80	mW/°C
Junction Temperature		T _J	+150	°C
Storage Temperature		T _{STG}	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Valid provided that terminals are kept at specified ambient temperature.

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	556	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS (Note 1)							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =100μA, V _{GS} =0V	60	70		V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =60V, V _{GS} =0V			1.0	μA
Gate- Source Leakage Current	Forward	I _{GSS}	V _{DS} =0V, V _{GS} =+15V			+10	nA
	Reverse		V _{DS} =0V, V _{GS} =-15V			-10	nA
ON CHARACTERISTICS (Note 1)							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	0.8	2.1	3.0	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =200mA			5.0	Ω
			V _{GS} =4.5V, I _D =50mA			5.3	Ω
Forward Transconductance		g _{FS}	V _{DS} =10V, I _D =0.2A	80			mS
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =10V, f=1.0MHz		22	40	pF
Output Capacitance		C _{OSS}			11	30	pF
Reverse Transfer Capacitance		C _{RSS}			2.0	5.0	pF
SWITCHING PARAMETERS							
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =25V, I _D =0.5A, V _{GS} =10V,			10	ns
Turn-OFF Delay Time		t _{D(OFF)}	R _{GEN} =50Ω			10	ns

Notes: 1. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

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