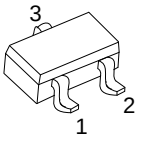
MMBF170

Power MOSFET

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



SOT-23-3
(JEDEC TO-236)

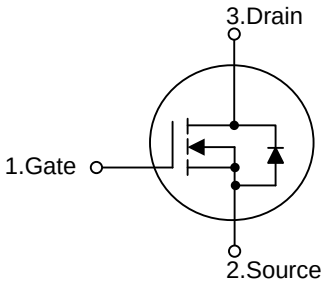
■ DESCRIPTION

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



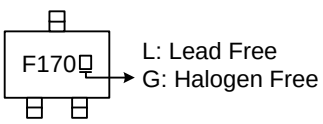
■ ORDERING INFORMATION

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, R_{GEN}=50Ω			10	ns
Turn-OFF Delay Time		$t_{D(OFF)}$				10	ns

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