MMBF170

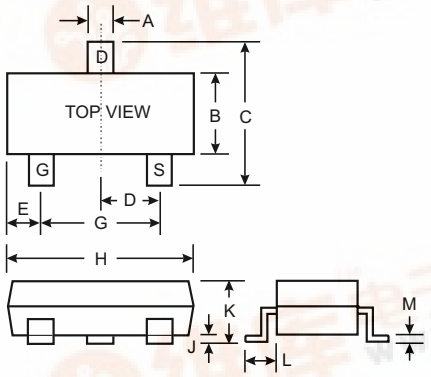
N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage

Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: K6Z
- Weight: 0.008 grams (approx.)



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.19	1.40
C	2.10	2.50
D	0.89	1.05
E	0.45	0.61
G	1.78	2.05
H	2.65	3.05
J	0.013	0.15
K	0.89	1.10
L	0.45	0.61
M	0.076	0.178
All Dimensions in mm		

Maximum Ratings

@ T_A = 25°C unless otherwise specified

Characteristic		Symbol	MMBF170	Units
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage $R_{GS} \le 1.0M\Omega$		V_{DGR}	60	V
Gate-Source Voltage	Continuous Pulsed	V_{GSS}	±20 ±40	V
Drain Current (Note 1)	Continuous Pulsed	I_D	500 800	mA
Total Power Dissipation (Note 1) Derating above T_A = 25°C		P_d	225 1.80	mW mW/°C
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	556	K/W
Operating and Storage Temperature Range		T_j, T_{STG}	-55 to +150	°C

Electrical Characteristics

@ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)						
Drain-Source Breakdown Voltage	BV_{DSS}	60	70	—	V	V_{GS} = 0V, I_D = 100µA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1.0	µA	V_{DS} = 60V, V_{GS} = 0V
Gate-Body Leakage	I_{GSS}	—	—	±10	nA	V_{GS} = ±15V, V_{DS} = 0V
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	$V_{GS(th)}$	0.8	2.1	3.0	V	V_{DS} = V_{GS}, I_D =-250µA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	—	5.0	Ω	V_{GS} = 10V, I_D = 200mA
Forward Transconductance	g_{FS}	80	—	—	mS	V_{DS} =10V, I_D = 0.2A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	22	40	pF	V_{DS} = 10V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	11	30	pF	
Reverse Transfer Capacitance	C_{rss}	—	2.0	5.0	pF	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	—	—	10	ns	V_{DD} = 25V, I_D = 0.5A, V_{GS} = 10V, R_{GEN} = 50Ω
Turn-Off Delay Time	$t_{D(OFF)}$	—	—	10	ns	

Note: 1. Valid provided that terminals are kept at specified ambient temperature.
2. Pulse width ≤ 300µs, duty cycle ≤ 2%.

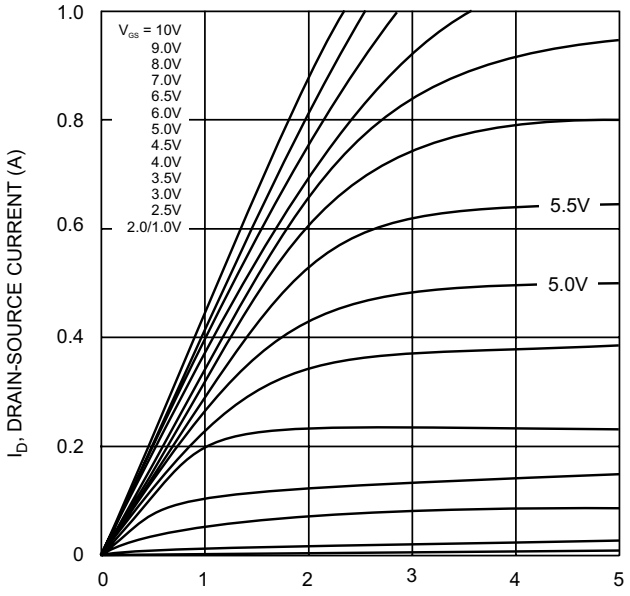


Fig. 1 On-Region Characteristics

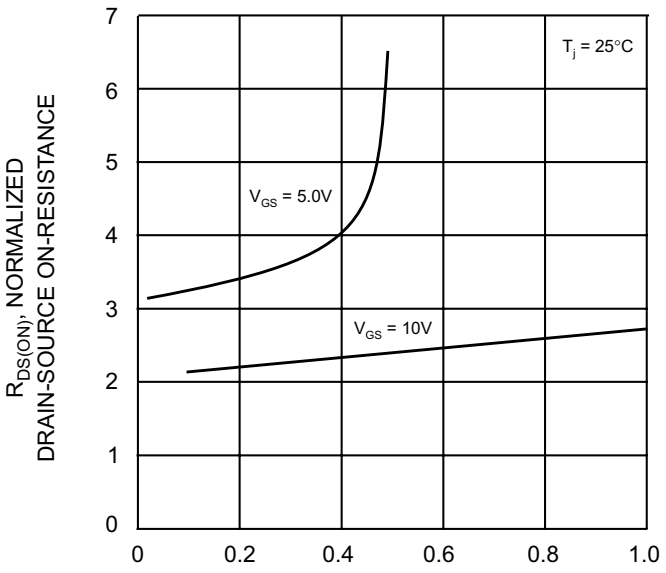


Fig. 2 On-Resistance vs Drain Current

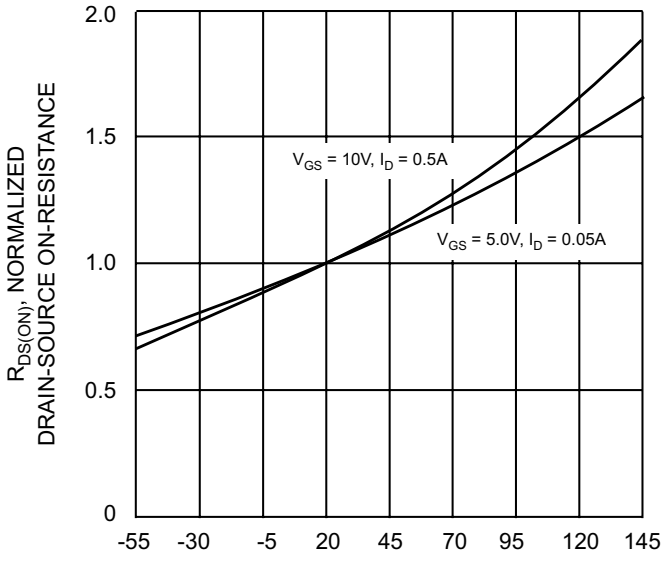


Fig. 3 On-Resistance vs Junction Temperature

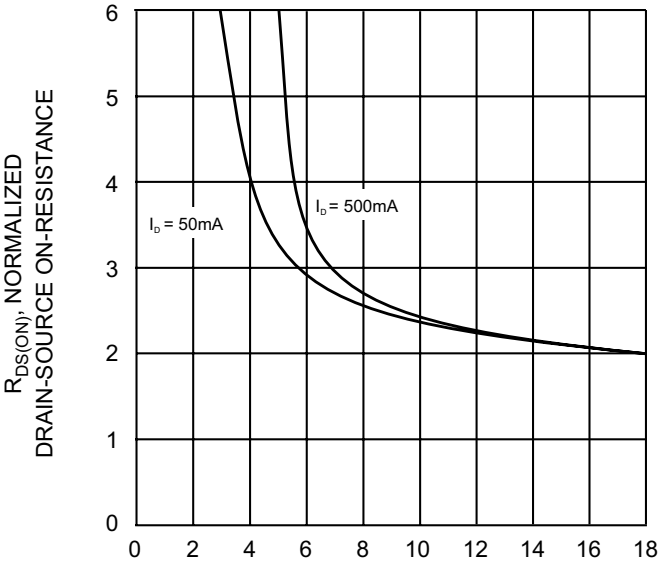


Fig. 4 On-Resistance vs. Gate-Source Voltage