

MMBF4391LT1, MMBF4392LT1, MMBF4393LT1

JFET Switching Transistors N-Channel

Features

- Pb-Free Packages are Available

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	Vdc
Drain-Gate Voltage	V_{DG}	30	Vdc
Gate-Source Voltage	V_{GS}	30	Vdc
Forward Gate Current	$I_{G(f)}$	50	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

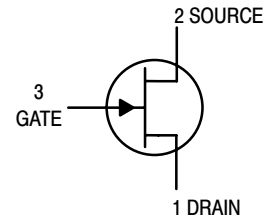
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

- FR-5 = $1.0 \times 0.75 \times 0.062$ in.

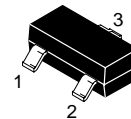


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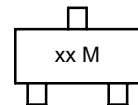
<http://onsemi.com>



MARKING DIAGRAM



SOT-23
CASE 318
STYLE 10



xx = Specific Device Code
M = Date Code

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

DEVICE MARKING INFORMATION

See specific marking information in the device marking section on page 2 of this data sheet.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Gate–Source Breakdown Voltage (I _G = 1.0 μAdc, V _{DS} = 0)	V _{(BR)GSS}	30	–	Vdc
Gate Reverse Current (V _{GS} = 15 Vdc, V _{DS} = 0, T _A = 25°C) (V _{GS} = 15 Vdc, V _{DS} = 0, T _A = 100°C)	I _{GSS}	– –	1.0 0.20	nAdc μAdc
Gate–Source Cutoff Voltage (V _{DS} = 15 Vdc, I _D = 10 nAdc)	V _{GS(off)}	–4.0 –2.0 –0.5	–10 –5.0 –3.0	Vdc
Off–State Drain Current (V _{DS} = 15 Vdc, V _{GS} = –12 Vdc) (V _{DS} = 15 Vdc, V _{GS} = –12 Vdc, T _A = 100°C)	I _{D(off)}	– –	1.0 1.0	nAdc μAdc

ON CHARACTERISTICS

Zero–Gate–Voltage Drain Current (V _{DS} = 15 Vdc, V _{GS} = 0)	MMBF4391LT1 MMBF4392LT1 MMBF4393LT1	I _{DSS}	50 25 5.0	150 75 30	mAdc
Drain–Source On–Voltage (I _D = 12 mAdc, V _{GS} = 0) (I _D = 6.0 mAdc, V _{GS} = 0) (I _D = 3.0 mAdc, V _{GS} = 0)	MMBF4391LT1 MMBF4392LT1 MMBF4393LT1	V _{DS(on)}	– – –	0.4 0.4 0.4	Vdc
Static Drain–Source On–Resistance (I _D = 1.0 mAdc, V _{GS} = 0)	MMBF4391LT1 MMBF4392LT1 MMBF4393LT1	r _{DS(on)}	– – –	30 60 100	Ω

SMALL–SIGNAL CHARACTERISTICS

Input Capacitance (V _{DS} = 15 Vdc, V _{GS} = 0, f = 1.0 MHz)	C _{iss}	–	14	pF
Reverse Transfer Capacitance (V _{DS} = 0, V _{GS} = 12 Vdc, f = 1.0 MHz)	C _{rss}	–	3.5	pF

ORDERING INFORMATION

Device	Marking	Package	Shipping†
MMBF4391LT1	6J	SOT–23	3000 / Tape & Reel
MMBF4391LT1G	6J	SOT–23 (Pb–Free)	
MMBF4392LT1	6K	SOT–23	
MMBF4393LT1	6G	SOT–23	
MMBF4393LT1G	6G	SOT–23 (Pb–Free)	

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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TYPICAL CHARACTERISTICS

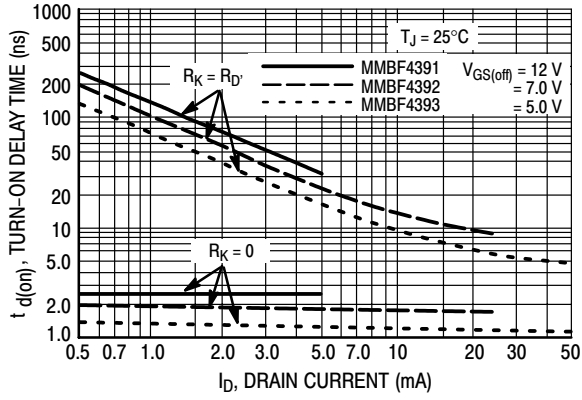


Figure 1. Turn-On Delay Time

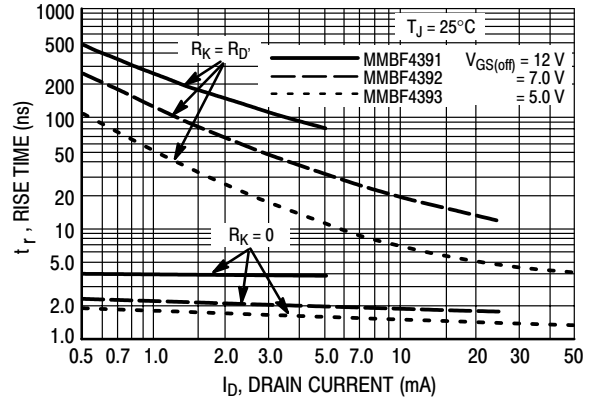


Figure 2. Rise Time

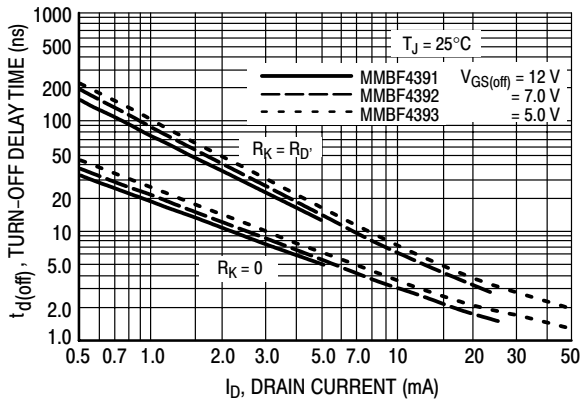


Figure 3. Turn-Off Delay Time

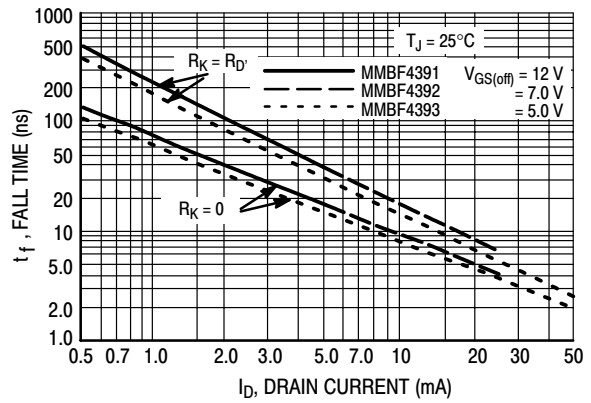


Figure 4. Fall Time