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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

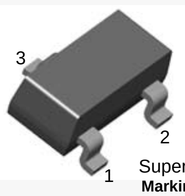
FAIRCHILD

April 2016

MMBF5434
N-Channel Switch

Features

- This device is designed for digital switching applications where very low on resistance is mandatory.
- Sourced from Process 58.



SuperSOT-3
Marking: 61Z

1. Drain 2. Source 3. Gate

Ordering Information

Part Number	Top Mark	Package	Packing Method
MMBF5434	61Z	SSOT 3L	Tape and Reel

Absolute Maximum Ratings(1), (2)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{DG}	Drain-Gate Voltage	25	V
V_{GS}	Gate-Source Voltage	-25	V
I_{GF}	Forward Gate Current	10	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to 150	°C

Notes:
1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

Thermal Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	350	mW
	Derate Above 25°C	2.8	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient[3]	556	°C/W

Notes:
3. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
Off Characteristics					
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	I_G = -1 µA, V_{DS} = 0	-25		V
I_{GSS}	Gate Reverse Current	V_{GS} = -15 V, V_{DS} = 0		200	nA
V_{GS}(off)	Gate-Source Cut-Off Voltage	V_{DS} = 5 V, I_D = 3nA	-1.0	-4.0	V
I_D(off)	Gate-Source Cutoff Voltage	V_{DS} = 5.0, V_{GS} = -10 V		200	pA
On Characteristics					
I_{DSS}	Zero-Gate Voltage Drain Current[4]	V_{DS} = 15 V, I_{GS} = 0	30		mA
r_{DS}(on)	Drain-Source On Resistance	V_{GS} = 0, I_D = 10 mA		10	Ω
Small Signal Characteristics					
C_{iss}	Input Capacitance	V_{DS} = 0, V_{GS} = 10 V, f = 1.0 MHz		30	pF
C_{rss}	Reverse Transfer Capacitance	V_{DS} = 0, V_{GS} = 10 V, f = 1.0 MHz		15	pF

Note:
4. Pulse test: pulse width ≤ 300 µs, duty cycle ≤ 2%.

Typical Performance Characteristics

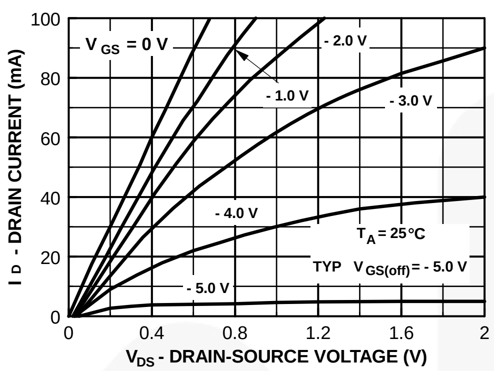


Figure 1. Common Drain-Source

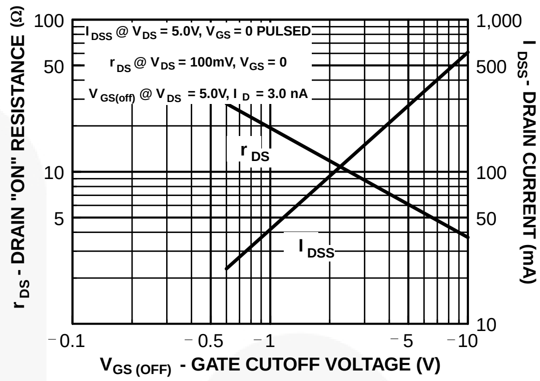


Figure 2. Parameter Interactions

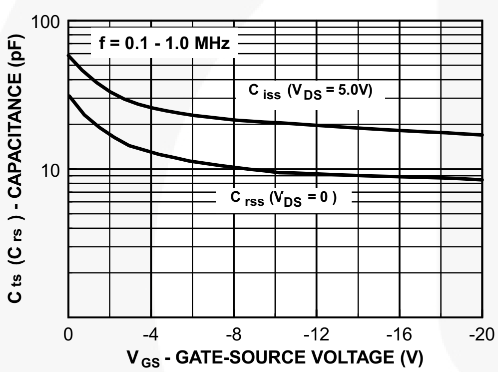


Figure 3. Common Drain-Source

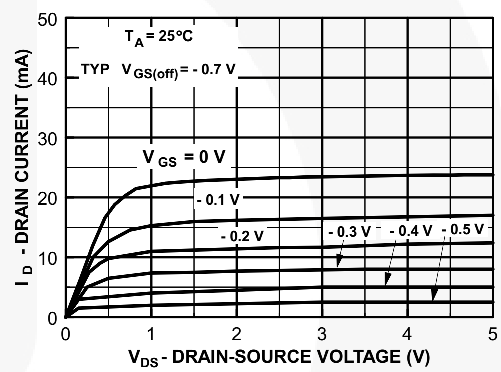


Figure 4. Common Drain-Source

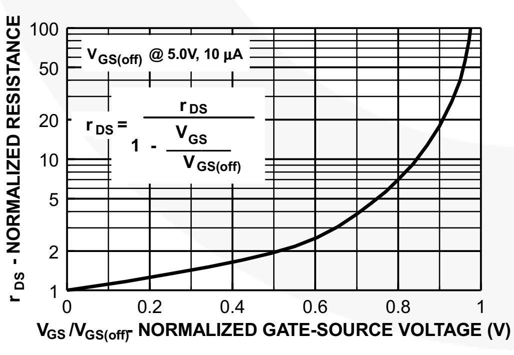


Figure 5. Normalized Drain Resistance vs. Bias Voltage

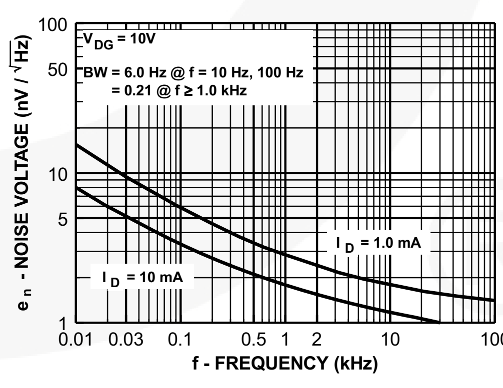


Figure 6. Noise Voltage vs. Frequency

Typical Performance Characteristics (Continued)

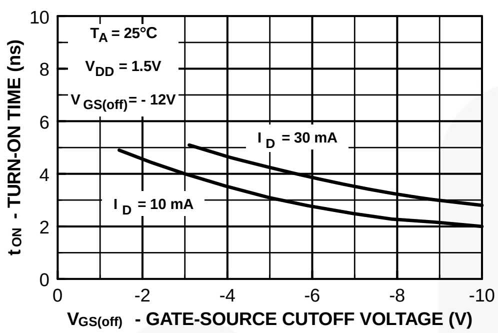


Figure 7. Switching Turn-On Time vs. Gate-Source Cut-Off Voltage

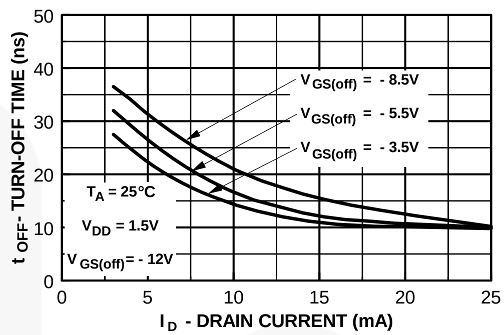


Figure 8. Switching Turn-On Time vs. Drain Current

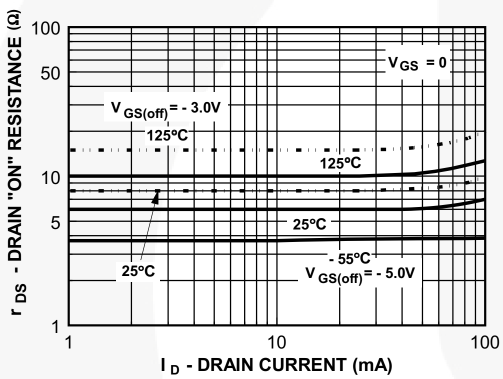


Figure 9. On Resistance vs. Drain Current

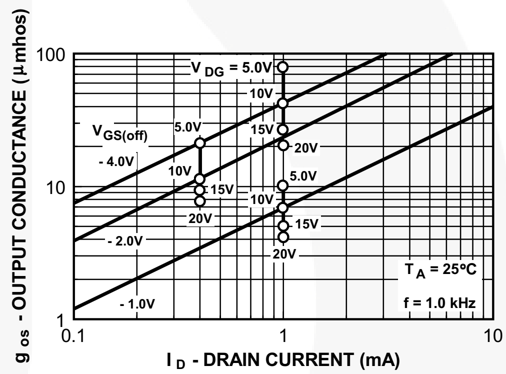


Figure 10. Output Conductance vs. Drain Current

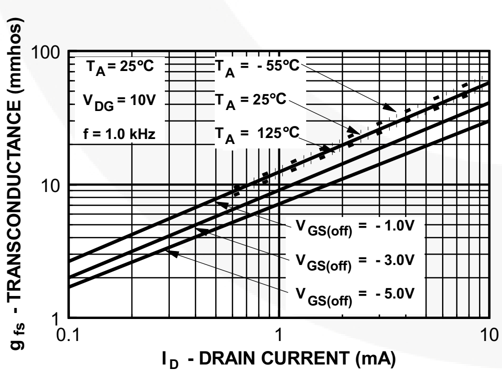


Figure 11. Transconductance vs. Drain Current

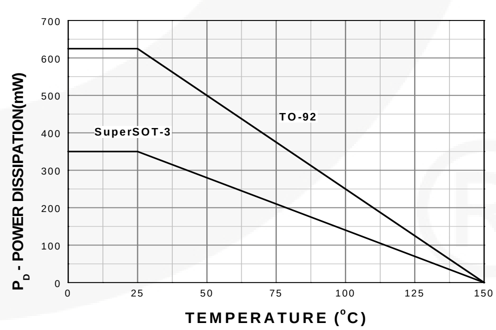
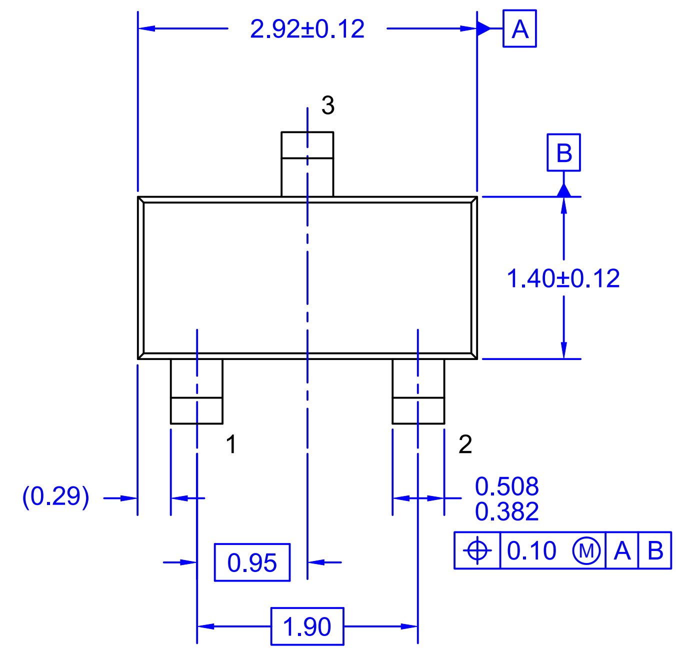
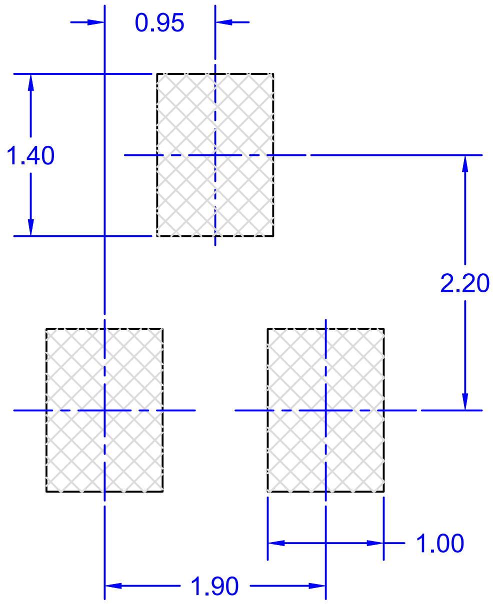
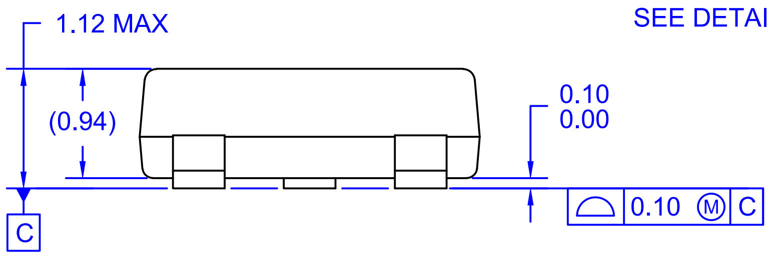


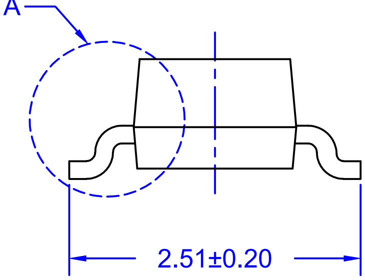
Figure 12. Power Dissipation vs. Ambient Temperature

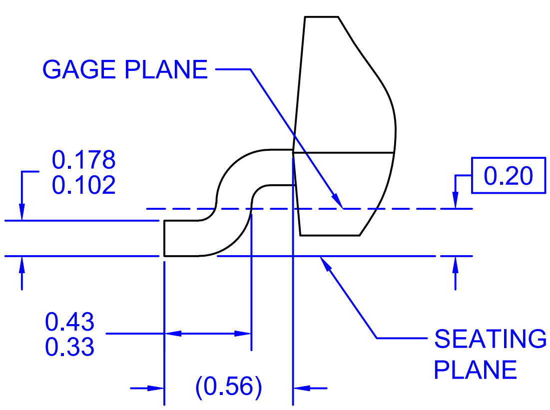




LAND PATTERN RECOMMENDATION







DETAIL A
SCALE: 50:1

NOTES: UNLESS OTHERWISE SPECIFIED

A) NO JEDEC REFERENCE AS OF AUGUST 2003
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 2009.
E) DRAWING FILE NAME: MKT-MA03BREV3

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PUBLICATION ORDERING INFORMATION

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