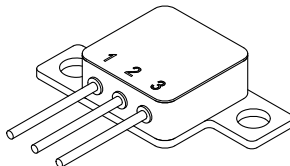
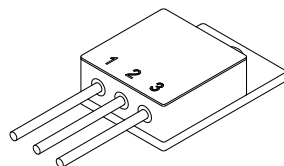


SFF44N50M
SFF44N50Z

25 AMP, 500 Volts, 110 mΩ Avalanche Rated N-channel MOSFET

- Rugged poly-Si gate
- Lowest ON-resistance in the industry
- Avalanche rated
- Hermetically Sealed, Isolated Package
- Low Total Gate Charge
- Fast Switching
- TX, TXV, S-Level screening available
- Improved ($R_{DS(ON)}$ Q_G) figure of merit

TO-254Z



Note 1: maximum current limited by package configuration

Maximum Ratings		Symbol	Value	Units
Drain - Source Voltage		V_{DSS}	500	V
Gate – Source Voltage	continuous transient	V_{GS}	± 20 ± 30	V
Max. Continuous Drain Current (package limited)	@ $T_C = 25^\circ C$	I_{D1}	25	A
	@ $T_C = 125^\circ C$	I_{D2}	12	
Max. Instantaneous Drain Current (T_j limited)	@ $T_C = 25^\circ C$	I_{D3}	35	A
Max. Avalanche current	@ $L = 0.1\text{ mH}$	I_{AR}	20	A
Single / Repetitive Avalanche Energy	@ $L = 0.1\text{ mH}$	E_{AS} / E_{AR}	1100 / 1	mJ
Total Power Dissipation	@ $T_C = 25^\circ C$	P_D	125	W
Operating & Storage Temperature		$T_{OP} \& T_{STG}$	-55 to +150	$^\circ C$
Maximum Thermal Resistance (Junction to Case)		R_{jc}	1.0 (typ.0.75)	$^\circ C/W$

Technical drawing of a 10-pin D-sub connector. The drawing includes a front view (top) and a side view (bottom). Dimensions are provided in inches and millimeters.

Front View Dimensions:

- Pin 1: 2x .155" / .145"
- Pin 2: 2x .305" / .295"
- Pin 3: 2x .275" / .255"
- Pin 4: 2x .140" / .125"
- Pin 5: 2x .150" / .140"
- Pin 6: 2x .140" / .125"
- Pin 7: 2x .140" / .125"
- Pin 8: 2x .140" / .125"
- Pin 9: 2x .140" / .125"
- Pin 10: 2x .140" / .125"
- Pin 11: 2x .140" / .125"
- Pin 12: 2x .140" / .125"
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- Pin 162: 2x .140" / .125"
- Pin 163: 2x .140" / .125"
- Pin 164: 2x .140" / .125"
- Pin 165: 2x .140" /

NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: FT0030A

DOC



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ssdi@ssdi-power.com * www.ssdi-power.com

SFF44N50M

SFF44N50Z

Electrical Characteristics ^{4/}		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	BV_{DSS}	500	530	—	V
Drain to Source On State Resistance	$V_{GS} = 10V, I_D = 20A, T_j = 25^\circ C$	$R_{DS(on)}$	—	100	110	mΩ
	$V_{GS} = 10V, I_D = 12A, T_j = 125^\circ C$		—	230	—	
	$V_{GS} = 10V, I_D = 20A, T_j = 150^\circ C$		—	270	—	
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 1.8mA, T_j = 25^\circ C$	$V_{GS(th)}$	2.1	3.0	3.9	V
	$V_{DS} = V_{GS}, I_D = 250\mu A, T_j = 25^\circ C$		—	2.7	—	
	$V_{DS} = V_{GS}, I_D = 250\mu A, T_j = -55^\circ C$		—	3.2	—	
	$V_{DS} = V_{GS}, I_D = 250\mu A, T_j = 125^\circ C$		—	1.9	—	
Gate to Source Leakage	$V_{GS} = \pm 20V, T_j = 25^\circ C$ $V_{GS} = \pm 20V, T_j = 125^\circ C$	I_{GSS}	— —	10 30	± 100 —	nA
Zero Gate Voltage Drain Current	$V_{DS} = 500V, V_{GS} = 0V, T_j = 25^\circ C$	I_{DSS}	—	0.01	25	μA
	$V_{DS} = 500V, V_{GS} = 0V, T_j = 125^\circ C$		—	2.0	—	μA
	$V_{DS} = 500V, V_{GS} = 0V, T_j = 150^\circ C$		—	10	250	μA
Forward Transconductance	$V_{DS} = 10V, I_D = 20A, T_j = 25^\circ C$	g_{fs}	10	30	—	Mho
Total Gate Charge	$V_{GS} = 10V$	Q_g	—	175	—	nC
Gate to Source Charge	$V_{DS} = 380V$	Q_{gs}	—	28	—	
Gate to Drain Charge	$I_D = 32A$	Q_{gd}	—	80	—	
Turn on Delay Time	$V_{GS} = 10V$	$t_{d(on)}$	—	30	—	nsec
Rise Time	$V_{DS} = 380V$	t_r	—	10	—	
Turn off Delay Time	$I_D = 32A$	$t_{d(off)}$	—	70	—	
Fall Time	$R_G = 2.7\Omega, pw = 3\mu s$	t_f	—	10	—	
Diode Forward Voltage	$I_F = 32A, V_{GS} = 0V$	V_{SD}	—	1.0	1.5	V
Diode Reverse Recovery Time	$I_F = 32A, di/dt = 100A/\mu sec$	t_{rr}	—	540	—	nsec
Peak Reverse Recovery Current		$I_{RM(rec)}$	—	45	—	A
Reverse Recovery Charge		Q_{rr}	—	12	—	μC
Input Capacitance	$V_{GS} = 0V$	C_{iss}	—	4500	—	pF
Output Capacitance	$V_{DS} = 25V$	C_{oss}	—	540	—	
Reverse Transfer Capacitance	$f = 1 MHz$	C_{rss}	—	100	—	

NOTES:

* Pulse Test: Pulse Width = 300μsec, Duty Cycle = 2%.

1/ For Ordering Information, Price, and Availability Contact Factory.

2/ Screening per MIL-PRF-19500.

3/ For Package Outlines / lead bending options / pinout configurations Contact Factory.

4/ Unless Otherwise Specified, All Electrical Characteristics @25°C.

Available Part Numbers:

Consult Factory

PIN ASSIGNMENT (Standard)

Package	Drain	Source	Gate
TO-254 (M)	Pin 1	Pin 2	Pin 3
TO-254Z (Z)	Pin 1	Pin 2	Pin 3

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