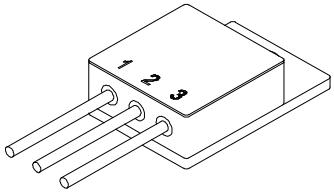
Solid State Devices, Inc.
14830 Valley View Blvd * La Mirada, Ca 90638
Phone: (562) 404-7855 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SFF80N10M
SFF80N10Z

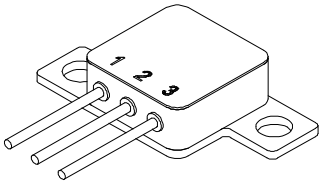
DESIGNER'S DATA SHEET

TO-254, TO254Z

Note 1: maximum current limited by package configuration



TO-254 (SFF85N10M)



TO-254Z (SFF85N10Z)

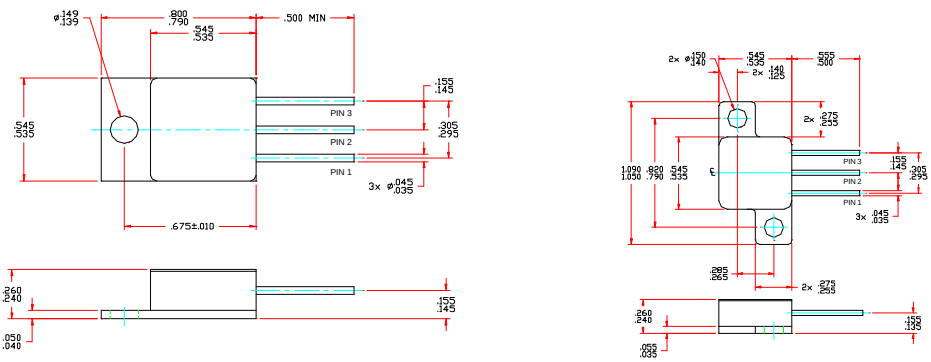
55 AMP (note 1) /100 Volts
12 mO
N-Channel Trench Gate MOSFET

Features:

- Trench gate technology for high cell density
- Lowest ON-resistance in the industry
- Enhanced operating temperature range
- Hermetically Sealed, Isolated Power Package
- Low Total Gate Charge
- Fast Switching
- Enhanced replacement for IRM150
- TX, TXV, S-Level screening available
- Improved ($R_{DS(ON)}$ Q_G) figure of merit

Maximum Ratings		Symbol	Value	Units
Drain - Source Voltage		V_{DSS}	100	V
Gate – Source Voltage		V_{GS}	±20	V
Max. Continuous Drain Current (package limited)	@ T_C = 25ºC @ T_C = 125ºC	I_{D1} I_{D2}	55 (note 1) 55 (note 1)	A
Max. Instantaneous Drain Current (Tj limited)	@ T_C = 25ºC @ T_C = 125ºC	I_{D3} I_{D4}	110 70	A
Max. Avalanche current	@ L= 0.1 mH	I_{AR}	75	A
Repetitive Avalanche Energy	@ L= 0.1 mH	E_{AR}	280	mJ
Total Power Dissipation	@ T_C = 25ºC	P_D	250	W
Operating & Storage Temperature		T_{OP} & T_{STG}	-55 to +200	ºC
Maximum Thermal Resistance	Junction to Case	$R_{\theta JC}$	0.7 (typ 0.55)	ºC/W

TO-254



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

DATA SHEET #: FT0019A DOC

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SFF80N10M
SFF80N10Z

Electrical Characteristics [4/]		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	V_{GS} = 0V, I_D = 250µA	BV_{DSS}	100	—	—	V
Drain to Source On State Resistance	V_{GS} = 10V, I_D = 30A, Tj= 25°C V_{GS} = 10V, I_D = 30A, Tj=125°C V_{GS} = 10V, I_D = 30A, Tj= 200°C V_{GS} = 10V, I_D = 85A, Tj= 25°C	$R_{DS(on)}$	— — — —	9.5 16 22 10	12.0 — — —	mO
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250µA	$V_{GS(th)}$	2.0	—	4.0	V
Gate to Source Leakage	V_{GS} = ±20V	I_{GSS}	—	—	±100	nA
Zero Gate Voltage Drain Current	V_{DS} = 80V, V_{GS} = 0V, T_j = 25°C V_{DS} = 80V, V_{GS} = 0V, T_j = 125°C V_{DS} = 80V, V_{GS} = 0V, T_j = 200°C	I_{DSS}	— —	— —	1 50 10	µA µA mA
Forward Transconductance	V_{DS} = 15V, I_D = 30A, T_j = 25°C	g_{fs}	23	—	—	Mho
Total Gate Charge **Gate to Source Charge** **Gate to Drain Charge**	V_{GS} = 10V V_{DS} = 50V I_D = 85A	Q_g Q_{gs} Q_{gd}	— — —	140 40 40	220 — —	nC
Turn on Delay Time **Rise Time** **Turn off Delay Time** **Fall Time**	V_{GS} = 10V V_{DS} = 50V I_D = 85A R_G = 2.5O	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	— — — —	25 115 75 110	35 185 110 160	nsec
Diode Forward Voltage	I_F = 50A, V_{GS} = 0V	V_{SD}	—	1.0	1.5	V
Diode Reverse Recovery Time **Peak Reverse Recovery Current** **Reverse Recovery Charge**	I_F = 50A, di/dt = 100A/usec	t_{rr} $I_{RM(rec)}$ Q_{rr}	—	70 5.5 0.2	150 10 0.35	nsec A µC
Input Capacitance **Output Capacitance** **Reverse Transfer Capacitance**	V_{GS} = 0V V_{DS} = 25V f = 1 MHz	C_{iss} C_{oss} C_{rss}	— — —	8700 750 450	— — —	pF

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 Contact Factory.

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

Available Part Numbers:

Consult Factory

PIN ASSIGNMENT (Standard)			
Package	**Drain**	**Source**	**Gate**
TO254	Pin 1	Pin 2	Pin 3
TO254Z	Pin 1	Pin 2	Pin 3

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