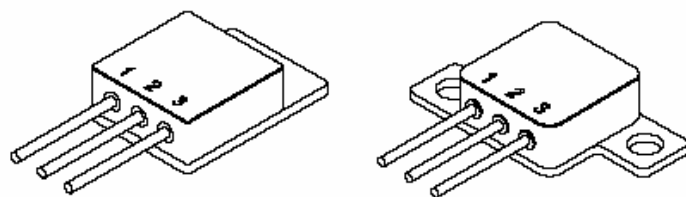



Solid State Devices, Inc.

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DESIGNER'S DATA SHEET
TO-254 and TO-254Z
Note 1: maximum current limited by package configuration


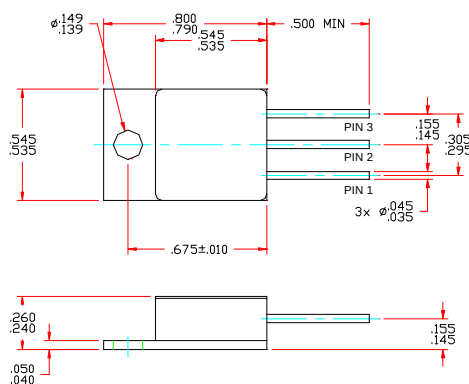
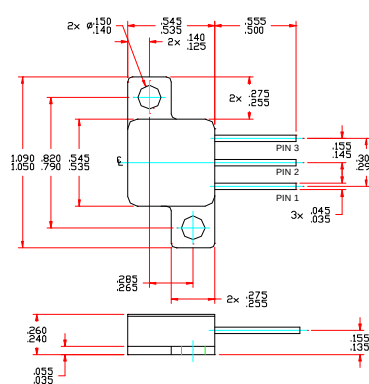
SFF85N06M

SFF85N06Z

55 AMP (note 1) /60 Volts
7 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 Package
- Low Total Gate Charge
- Fast Switching
- Enhanced replacement for IRFP064
- 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}	60	V
Gate - Source Voltage		V_{GS}	± 20	V
Max. Continuous Drain Current (package limited)	@ $T_C = 25^\circ C$	I_{D1}	55 (note 1)	A
	@ $T_C = 125^\circ C$	I_{D2}	55 (note 1)	A
Max. Instantaneous Drain Current (T_j limited)	@ $T_C = 25^\circ C$	I_{D3}	175	A
	@ $T_C = 125^\circ C$	I_{D4}	75	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	@ $T_C = 25^\circ C$	P_D	210	W
Operating & Storage Temperature		T_{OP} & T_{STG}	-55 to +175	$^\circ C$
Maximum Thermal Resistance (Junction to Case)		$R_{\theta JC}$	0.7 (typ 0.55)	$^\circ C/W$

TO-254 (M)

TO-254Z (Z)


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

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SFF85N06M

SFF85N06Z

Electrical Characteristics ^{4/}		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	BV_{DSS}	60	—	—	V
Drain to Source On State Resistance	$V_{GS} = 10V, I_D = 30A, T_j = 25^\circ C$	$R_{DS(on)}$	—	5.0	7.0	mΩ
	$V_{GS} = 4.5V, I_D = 20A, T_j = 25^\circ C$		—	7.0	—	
	$V_{GS} = 10V, I_D = 30A, T_j = 125^\circ C$		—	9.0	—	
	$V_{GS} = 10V, I_D = 30A, T_j = 200^\circ C$		—	10.5	—	
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(th)}$	1.0	—	3.0	V
Gate to Source Leakage	$V_{GS} = \pm 20V$	I_{GSS}	—	—	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS} = 48V, V_{GS} = 0V, T_j = 25^\circ C$	I_{DSS}	—	—	1	μA
	$V_{DS} = 48V, V_{GS} = 0V, T_j = 125^\circ C$		—	—	50	μA
	$V_{DS} = 48V, V_{GS} = 0V, T_j = 200^\circ C$		—	—	10	mA
Forward Transconductance	$V_{DS} = 15V, I_D = 30A, T_j = 25^\circ C$	g_{fs}	25	—	—	Mho
Total Gate Charge	$V_{GS} = 10V$	Q_g	—	150	225	nC
Gate to Source Charge	$V_{DS} = 30V$	Q_{gs}	—	30	—	
Gate to Drain Charge	$I_D = 110A$	Q_{gd}	—	50	—	
Turn on Delay Time	$V_{GS} = 10V$	$t_{d(on)}$	—	25	35	nsec
Rise Time	$V_{DS} = 30V$	t_r	—	135	200	
Turn off Delay Time	$I_D = 110A$	$t_{d(off)}$	—	85	125	
Fall Time	$R_G = 2.5\Omega$	t_f	—	150	225	
Diode Forward Voltage	$I_F = 110A, V_{GS} = 0V$	V_{SD}	—	1.1	1.5	V
Diode Reverse Recovery Time	$I_F = 100A, di/dt = 100A/\mu sec$	t_{rr}	—	75	125	nsec
Peak Reverse Recovery Current		$I_{RM(rec)}$	—	2.5	5	A
Reverse Recovery Charge		Q_{rr}	—	0.1	0.25	μC
Input Capacitance	$V_{GS} = 0V$	C_{iss}	—	7500	—	pF
Output Capacitance	$V_{DS} = 25V$	C_{oss}	—	1050	—	
Reverse Transfer Capacitance	$f = 1 MHz$	C_{rss}	—	700	—	

NOTES:

 * Pulse Test: Pulse Width = 300 μ sec, 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
TO-254 (M)	Pin 1	Pin 2	Pin 3
TO-254Z (Z)	Pin 1	Pin 2	Pin 3

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