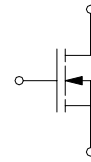




SOLID STATE DEVICES, INC.

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

SFF70N04 SERIES



70 AMP / 40 VOLTS
0.010 Ω
N-CHANNEL
POWER MOSFET

DESIGNER'S DATA SHEET

Part Number /Ordering Information ^{1/}

SFF70N04 S.5 TX

Screening ^{2/}: _ = Not Screened

TX = TX Level

TXV = TXV Level

S = Space Level

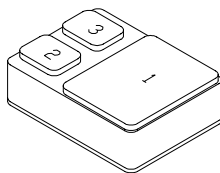
Package: ^{3/} S.5 = SMD.5

APPLICATION NOTES:

- Low RDS (on) and High Transconductance
- Excellent High Temperature Stability
- Fast Switching Speed
- Intrinsic Rectifier
- Hermetically Sealed Package
- TX, TXV, and Space Level Screening Available

MAXIMUM RATINGS	SYMBOL	VALUE	UNITS
Drain-Source Voltage	V _{DS}	40	Volts
Gate-Source Voltage	V _{GS}	E 20	Volts
Continuous Collector Current @ T _C = 25°C @ T _C = 100°C	I _C	56 ^{5/} 47	Amps
Pulsed Drain Current	I _{DM}	140	Amps
Avalanche Current	I _{AR}	60	Amps
Repetitive Avalanche Energy	E _{AR}	180	mJ
Operating and Storage Temperature	T _J , T _{STG}	-55 to +175	°C
Total Device Dissipation @ T _C = 25°C	P _D	107	W
Thermal Resistance, Junction to Case	R _{θJC}	1.1	°C/W

SMD.5 (S.5)



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

DATA SHEET #: F00002B

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ELECTRICAL CHARACTERISTICS ^{4/}		SYMBOL	MIN	TYP	MAX	UNITS
Drain - Source Breakdown Voltage (V _{GS} = 0V, I _D = 250μA)		V _{(BR)DSS}	40	-	-	V
Gate Threshold Voltage (V _{DS} = V _{GS} , I _{DS} = 250μA)		V _{GS(th)}	1	-	3	V
Gate - Emitter Leakage Current (V _{DS} = 0V, V _{GS} = ±20V)		I _{GSS}	-	-	E 100	nA
Zero Gate Voltage Drain Current (V _{DS} = 40V, V _{GS} = 0V)		I _{DSS}	T _J = 25°C -	-	1	μA
			T _J = 125°C -	-	50	
On-State Drain Current * (V _{DS} = 5V, V _{GS} = 10V)		I _{D(on)}	70	-	-	A
Drain-Source On-State Resistance * V _{GS} = 10V, I _D = 30A V _{GS} = 4.5V, I _D = 20A		R _{DS(on)}	T _J = 25°C -	0.008	0.010	Ω
			T _J = 125°C -	0.014	0.017	
			T _J = 25°C -	0.011	0.014	
			T _J = 125°C -	0.019	0.024	
Forward Transconductance * (V _{DS} = 15V, I _D = 30A)		g _{fs}	20	57	-	S
Input Capacitance	V _{DS} = 25V, V _{GS} = 0V, f = 1MHz	C _{iss}	-	2700	-	pF
Output Capacitance		C _{oss}	-	600	-	pF
Reverse Transfer Capacitance		C _{rss}	-	160	-	pF
Total Gate Charge	V _{DS} = 15V, V _{GS} = 10V, I _D = 70A	Q _g	-	50	100	nC
Gate - Source Charge		Q _{gs}	-	10	-	nC
Gate - Drain Charge		Q _{gd}	-	9	-	nC
Turn-On Delay Time	V _{DD} = 15V, I _D = 70A, V _{GEN} = 10V, R _L = 0.2Ω, R _G = 2.5Ω	t _{d(on)}	-	14	30	nsec
Rise Time		t _r	-	12	30	nsec
Turn-Off Delay Time		t _{d(off)}	-	58	100	nsec
Fall Time		t _f	-	30	60	nsec
Reverse Diode Forward Voltage Drop (I _F = 70A, V _{GS} = 0V)		V _F	-	1.0	1.5	V
Reverse Diode Reverse Recovery Time (I _F = 70A, di/dt = 100A/μs)		t _{RR}	-	50	100	nsec

NOTES:

- * Pulse Test: Pulse Width = 300us, 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/ All Electrical Characteristics @25°C, Unless Otherwise Specified.
- 5/ Current Limited by Package, Die Rated at 70A

Available Part Numbers:
SFF70N04S.5

PIN ASSIGNMENT

PACKAGE	Drain	Source	Gate
SMD.5	Pin1	Pin 2	Pin 3