SJTP20N60A

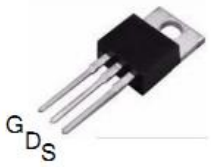
N-Channel MOSFET

Lead Free Package and Finish

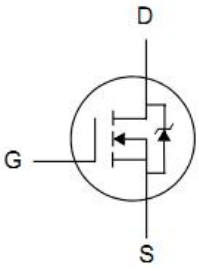
Applications:
- Adaptor
- Charger
- SMPS

V_{DSS}	$R_{DS(ON)}$(Typ.)	I_D
600V	0.17Ω	20A

Features:
- RoHS Compliant
- Low ON Resistance
- Low Gate Charge
- Peak Current vs Pulse Width Curve
- Inductive Switching Curves



TO-220
Packages
Not to Scale



Ordering Information

PART NUMBER	PACKAGE	BRAND
SJTP20N60A	TO-220	*IPS*

Absolute Maximum Ratings T_C=25℃ unless otherwise specified

Symbol	Parameter	SJTP20N60A	Units
V_{DSS}	Drain-to-Source Voltage	600	V
I_D	Continuous Drain Current	20	A
I_{DM}	Pulsed Drain Current, V_{GS}@10V	60	A
P_D	Power Dissipation	208	W
	Derating Factor above 25℃	1.6	W/℃
V_{GS}	Gate-to-Source Voltage	±30	V
E_{AS}	Single Pulse Avalanche Energy	500	mJ
E_{AR}	Avalanche Energy ,Repetitive	1	mJ
I_{AR}	Avalanche Current	20	A
T_L	Maximum Temperature for Soldering	300	℃
T_J and T_{STG}	Operating Junction and Storage Temperature Range	-55 to150	

Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units	Test Conditions
$R_{\theta JC}$	Junction-to-Case		0.6	℃/W	Water cooled heatsink, P_D adjusted for a peak junction temperature of +150℃.
$R_{\theta JA}$	Junction-to-Ambient		62		1 cubic foot chamber, free air.

OFF Characteristics T_C=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	600	--	--	V℃	V_{GS}=0V, I_D=250μA
I_{DSS}	Drain-to-Source Leakage Current	--	--	1	μA	V_{DS}=600V, V_{GS}=0V T_J=25℃
		--	--	100		V_{DS}=600V, V_{GS}=0V T_J=125℃
I_{GSS}	Gate-to-Source Forward Leakage	--	--	+100	nA	V_{GS}=+30V
	Gate-to-Source Reverse Leakage	--	--	-100		V_{GS}= -30V

ON Characteristics T_J=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	0.17	0.19	Ω	V_{GS}=10V, I_D=10A (NOTE *4)
$V_{GS(TH)}$	Gate Threshold Voltage	2.5	--	3.5	V	V_{DS}=V_{GS},I_D=250μA
g_{fs}	Forward Transconductance	--	18.8	--	S	V_{DS}=10V, I_D=20A (NOTE *4)

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
C_{iss}	Input Capacitance	--	2140	--	pF	V_{GS}= 0V,V_{DS} = 50V f =1.0MHz
C_{oss}	Output Capacitance	--	300	--		
C_{rss}	Reverse Transfer Capacitance	--	18	--		
Q_g	Total Gate Charge	--	54	--	nC	I_D=20A,V_{DD}=480V V_{GS} = 10V
Q_{gs}	Gate-to-Source Charge	--	10	--		
Q_{gd}	Gate-to-Drain (“Miller”) Charge	--	20	--		

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$t_{d(ON)}$	Turn-on Delay Time	--	48	104	ns	V_{DD}=300V, I_D=20A, V_G=10V R_G=25Ω
t_{rise}	Rise Time	--	108	220		
$t_{d(OFF)}$	Turn-Off Delay Time	--	176	360		
t_{fall}	Fall Time	--	50	108		

Source-Drain Diode Characteristics Tc=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
I_S	Continuous Source Current (Body Diode)	--	--	20	A	T_C=25℃
I_{SM}	Maximum Pulsed Current (Body Diode)	--	--	60	A	
V_{SD}	Diode Forward Voltage	--	0.95	1.2	V	I_{SD}=20A, V_{GS}=0V
t_{rr}	Reverse Recovery Time	--	440	--	ns	I_S=20A, di/dt=100A/us
Q_{rr}	Reverse Recovery Charge	--	5	--	uC	

Notes:

*1. T_J = +25℃ to +150℃.

*2. Repetitive rating; pulse width limited by maximum junction temperature.

*3. di/dt < 100 A/μs, V_{DD} < BV_{DSS}, T_J=+150℃.

*4. Pulse width < 380μs; duty cycle < 2%.

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