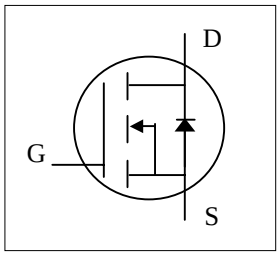
AP20SL60WL-A

Preliminary

Advanced Power Electronics Corp.

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

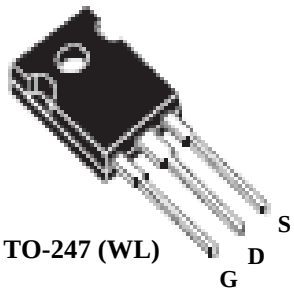
- ▼ **Fast Switching Characteristic**
- ▼ **Simple Drive Requirement**
- ▼ **RoHS Compliant & Halogen-Free**



V_{DS} @ $T_{j,max.}$	700V
$R_{DS(ON)}$	0.19Ω
I_D	20A

Description

AP20SL60 series are from Advanced Power innovated design and silicon process technology to achieve the lowest possible on-resistance and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of power applications.
The TO-247 package is widely preferred for commercial-industrial applications. The device is suited for switch mode power supplies, DC-AC converters and high current high speed switching circuits.



TO-247 (WL)

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage	±30	V
I_D@T_C=25℃	Drain Current, V_{GS} @ 10V[3]	20	A
I_D@T_C=100℃	Drain Current, V_{GS} @ 10V[3]	12.3	A
I_{DM}	Pulsed Drain Current[1]	48	A
P_D@T_C=25℃	Total Power Dissipation	147	W
P_D@T_A=25℃	Total Power Dissipation	3.12	W
E_{AS}	Single Pulse Avalanche Energy[4]	20	mJ
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Value	Units
Rthj-c	Maximum Thermal Resistance, Junction-case	0.85	℃/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient	40	℃/W

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	650	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=6.2A	-	-	0.19	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	2	-	5	V
g_{fs}	Forward Transconductance	V_{DS}=10V, I_D=7.5A	-	16	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=480V, V_{GS}=0V	-	-	100	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge	I_D=7.5A	-	44	70.4	nC
Q_{gs}	Gate-Source Charge	V_{DS}=480V	-	7	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	V_{GS}=10V	-	17	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=300V	-	11	-	ns
t_r	Rise Time	I_D=7.5A	-	23	-	ns
$t_{d(off)}$	Turn-off Delay Time	R_G=3.3Ω	-	53	-	ns
t_f	Fall Time	V_{GS}=10V	-	37	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V	-	1660	2656	pF
C_{oss}	Output Capacitance	V_{DS}=25V	-	750	-	pF
C_{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	20	-	pF
R_g	Gate Resistance	f=1.0MHz	-	4.5	9	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage[2]	I_S=6.2A, V_{GS}=0V	-	0.8	-	V
t_{rr}	Reverse Recovery Time	I_S=7.5A, V_{GS}=0V	-	270	-	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=50A/μs	-	1.9	-	μC

Notes:

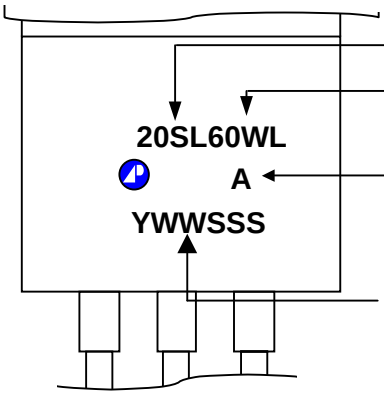
1.Pulse width limited by max. junction temperature.

2.Pulse test

3.Limited by max. junction temperature. Maximum duty cycle D=0.75

4.Starting T_j=25°C , V_{DD}=50V , L=10mH , R_G=25Ω

MARKING INFORMATION



Part Number

Package Code

Option

Date Code (YWWSSS)

Y：Last Digit Of The Year

WW：Week

SSS：Sequence