EAY36781302 & EAX36781601/7 - 47LB7DF

Components:
1. 4pins D15XB 60 B018D ("8" has a dash over it and "D" has a dash below it)
2. 2pins MURF1060 SSG A09182
3. 3pins SD20N60 GBY908
4. 3pins SD20N60 GBY908
5. 3pins cannot find any numbers or letters on this item?
6. 2pins 920 SFAF508G
7. 2pins K16 R860PF2
8. 2pins K16 R860PF2
9. 2pins 920 SFAF508G
10. 3pins SD20N60 GAY908
11. 3pins 04N60C3 GAB 918
12. 3pins N 9B FCH10A20 K7A
13. 3pins N 9B FCH10A20 K7A
14. 3pins N 8K FCU20UC30 339
15. 3pins F1 K15 FQPF 27P06

Multimeter mesures.

3. pins SD20N60 GBY908
Pin 1 & 2 1.249 M
Pin 1 & 3 23.67K
Pin 2 & 3 1.288M

4. 3pins SD20N60 GBY908
Pin 1 & 2 1.247M
Pin 1 & 3 23.67K
Pin 2 & 3 1.287M

5. I still cannot find a P/N
Pin 1 & 2 2.055M
Pin 1 & 3 10.07K
Pin 2 & 3 OL

6-9 are tested with black lead on 1 and red lead on 2; then next reading is with red lead on 1 and black lead on 2.

6. 2pins 920 SFAF508G
BL1 RL2 1.992M
RL1 BL2 OL

7. 2pins K16 R860PF2
BL1 RL2 .3 OHM
RL1 BL2 .3OHM

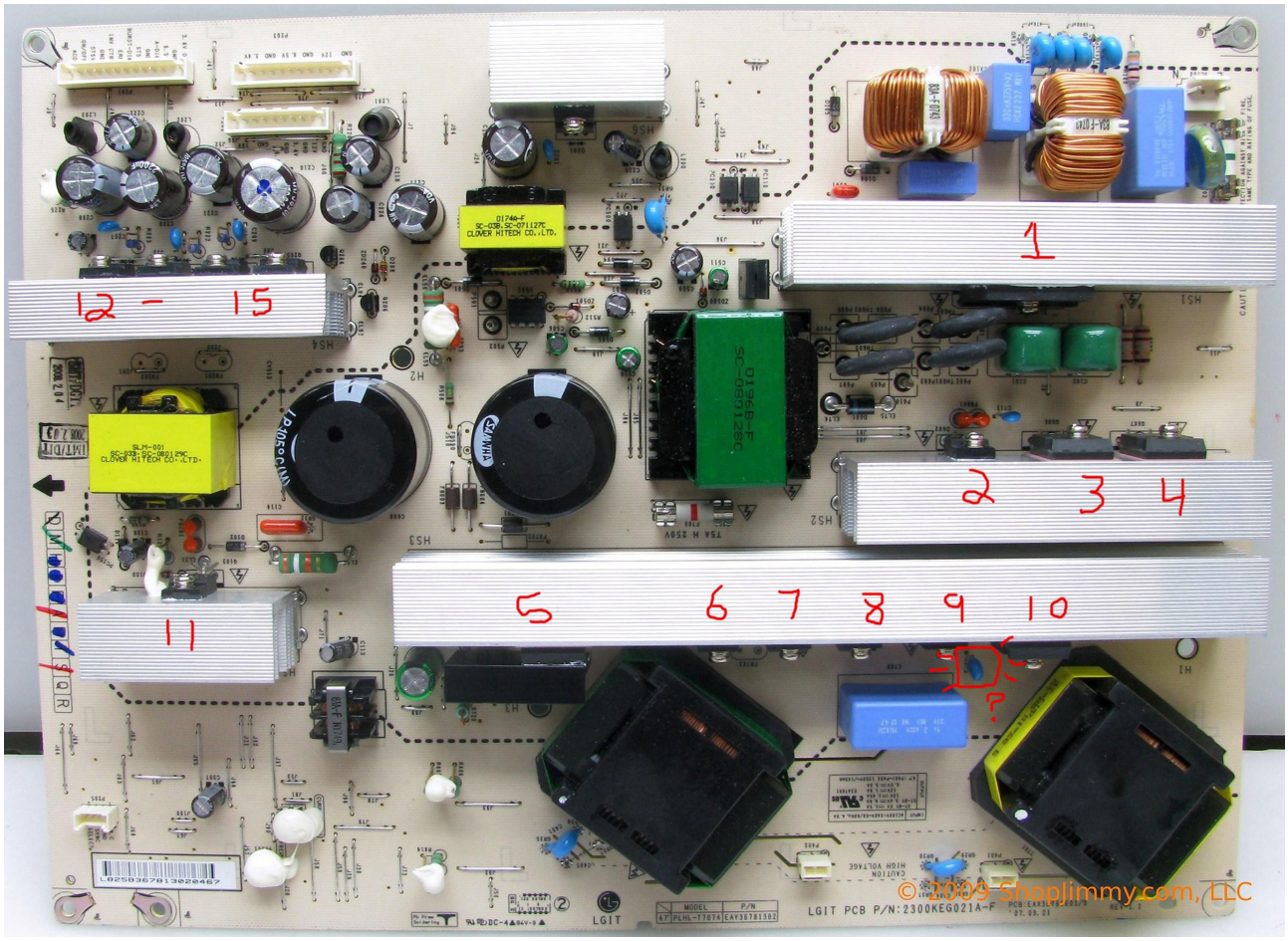
8. 2pins K16 R860PF2
BL1 RL2 1.570M
RL1 BL2 1.933M

9. 2pins 920 SFAF508G
BL1 RL2 1.863M
RL1 BL2 1.583M

10. 3pins SD20N60 GAY908
Pin 1 & 2 13.2 OHM
Pin 1 & 3 13.2 OHM
Pin 2 & 3 .3 OHM

11. 3pins 04N60C3 GAB 918
Pin 1 & 2 10.09K
Pin 1 & 3 10.09K
Pin 2 & 3 .3 OHM

12. 3pins N 9B FCH10A20 K7A
Pin 1 & 2 194.1 OHM
Pin 1 & 3 .3 OHM
Pin 2 & 3 193.7 OHM



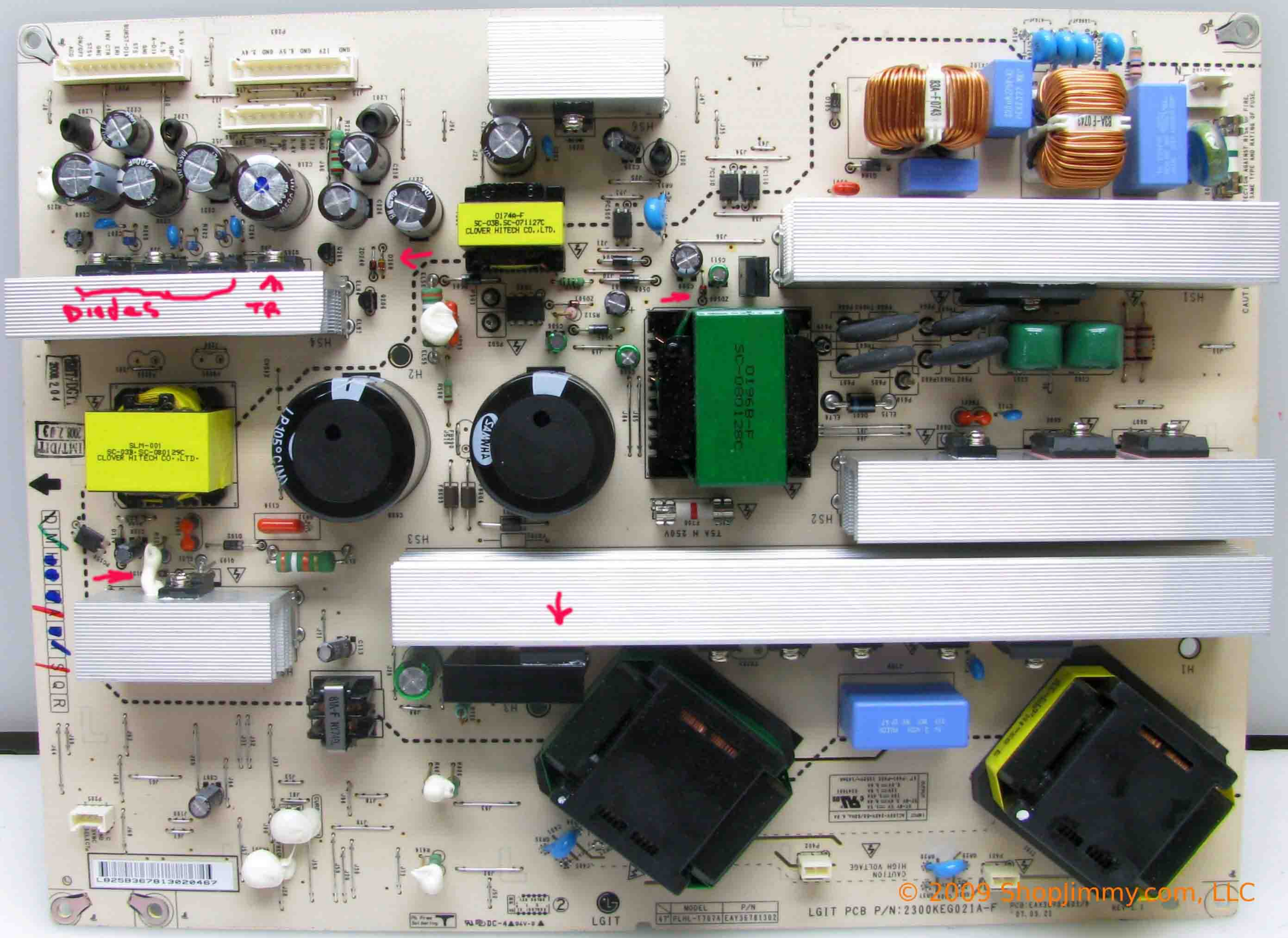
12 - 15

1

2 3 4

11

5 6 7 8 9 10


Diodes
TR
LGIT PCB P/N:2300KEG021A-F
MODEL
P/N
PLHL-T707A
EAY36781302
LGIT
© 2009 ShopJimmy.com, LLC

Nihon Inter Electronics Corporation

20A 200V Cathode Common

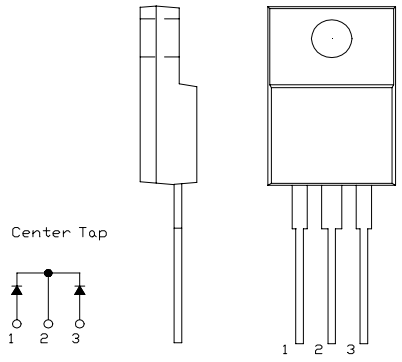
SBD Type : FCH20A20

OUTLINE DRAWING

For High Frequency Rectification

FEATURES

* High VRM SBD
* Low Forward Voltage Drop and Low Noise
* Fully Molded Isolation
* Dual Diodes Cathode Common



Maximum Ratings

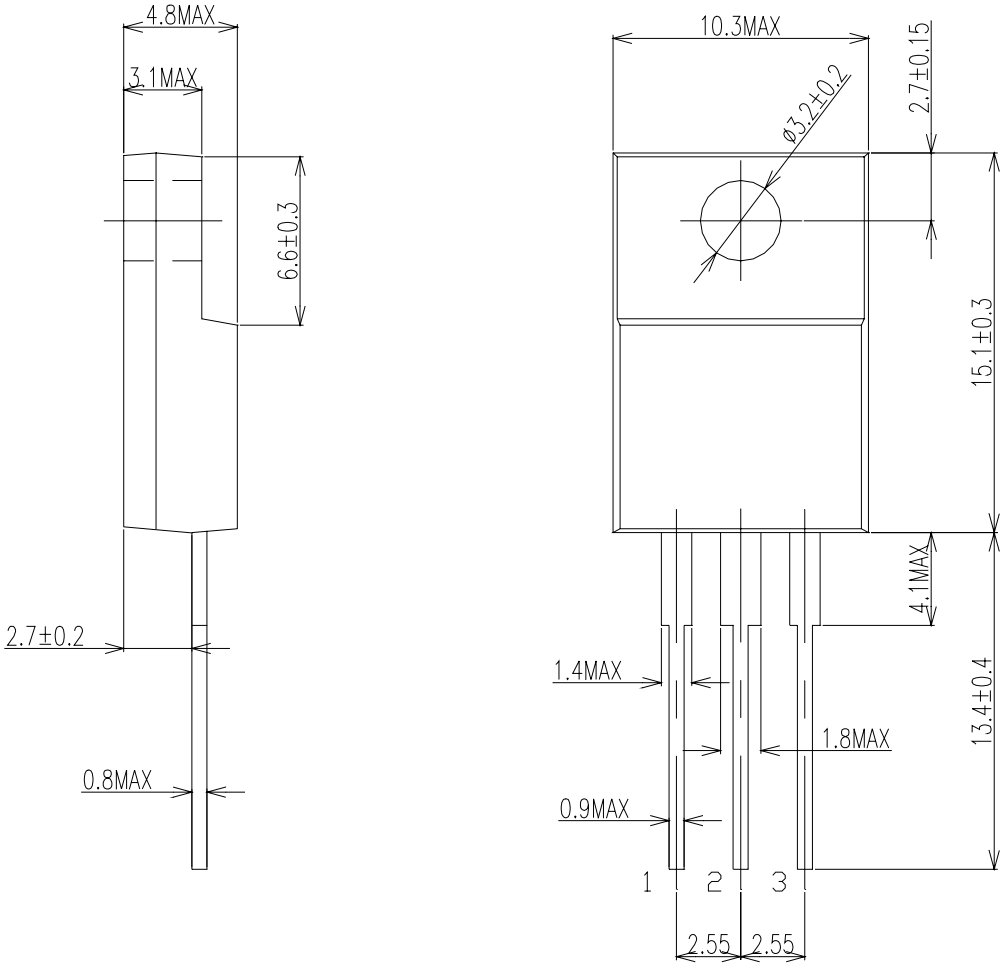
Approx Net Weight:1.75g

Rating	Symbol	FCH20A20			Unit
Repetitive Peak Reverse Voltage	V_{RRM}	200			V
Average Rectified Output Current	I_O	20	Tc=118℃	50 Hz,Full Sine Wave Resistive Load	A
RMS Forward Current	$I_{F(RMS)}$	22.2			A
Surge Forward Current	I_{FSM}	120	50 Hz Full Sine Wave,1cycle Non-repetitive		A
Operating JunctionTemperature Range	Tjw	- 40 to + 150			℃
Storage Temperature Range	Tstg	- 40 to + 150			℃
Mounting torque		0.5	Recommended value		N•m

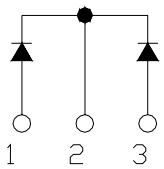
Electrical • Thermal Characteristics

Characteristics	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Current	I_{RM}	Tj=25℃,V_{RM}=V_{RRM} per Diode	-	-	200	μA
Peak Forward Voltage	V_{FM}	Tj=25℃, I_{FM}=10A per Diode	-	-	0.90	V
Thermal Resistance	Rth(j-c)	Junction to Case	-	-	3	℃/W
	Rth(c-f)	Case to Fin	-	-	1.5	

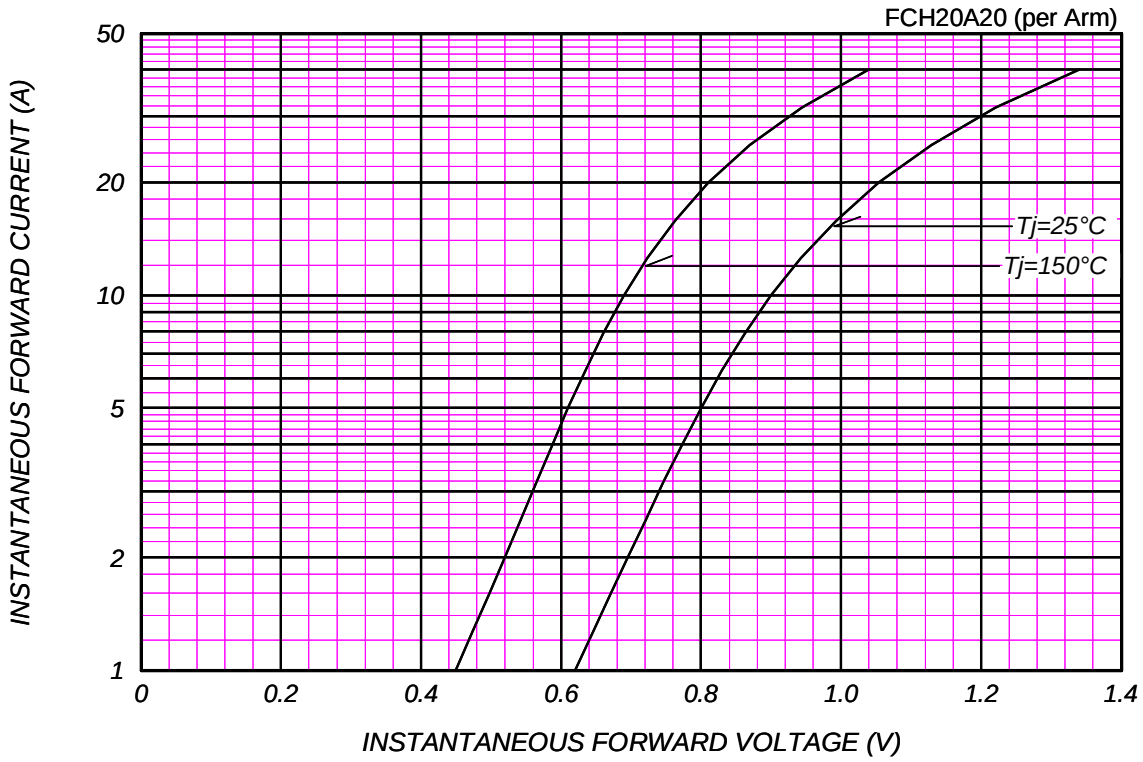
FxH20A20 OUTLINE DRAWING (Dimensions in mm)

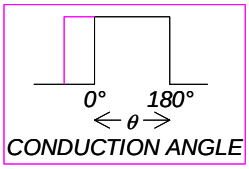


Center Tap

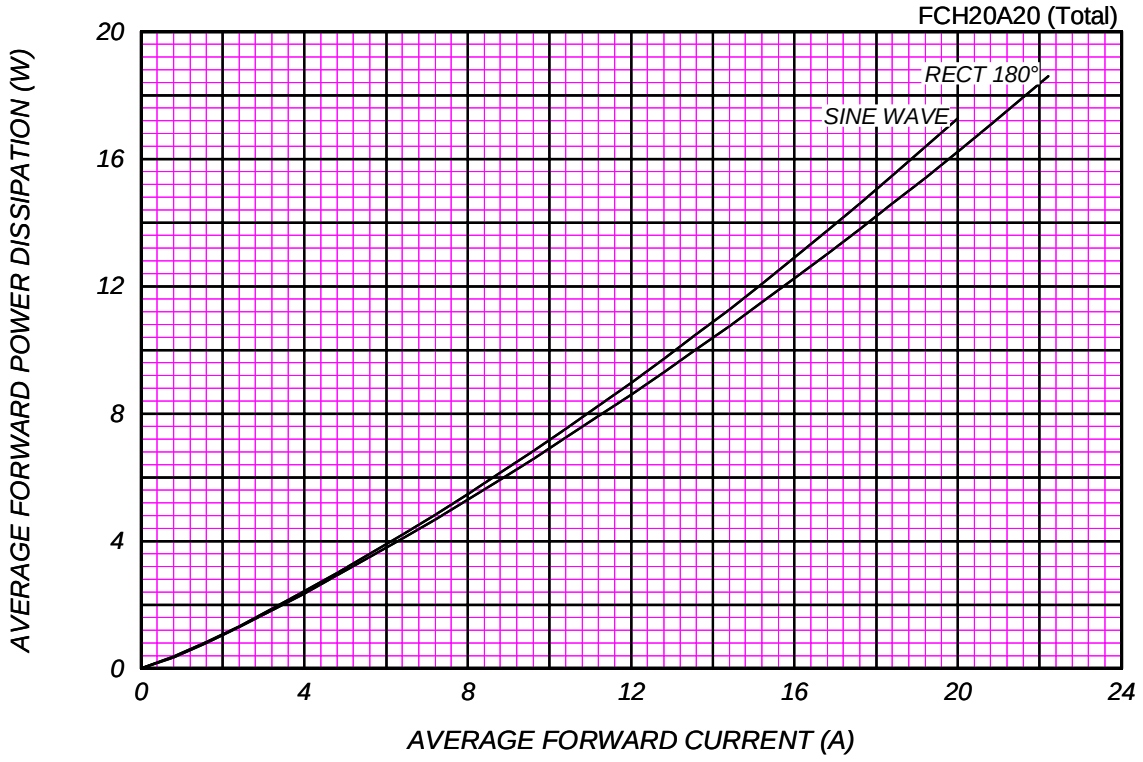


FORWARD CURRENT VS. VOLTAGE

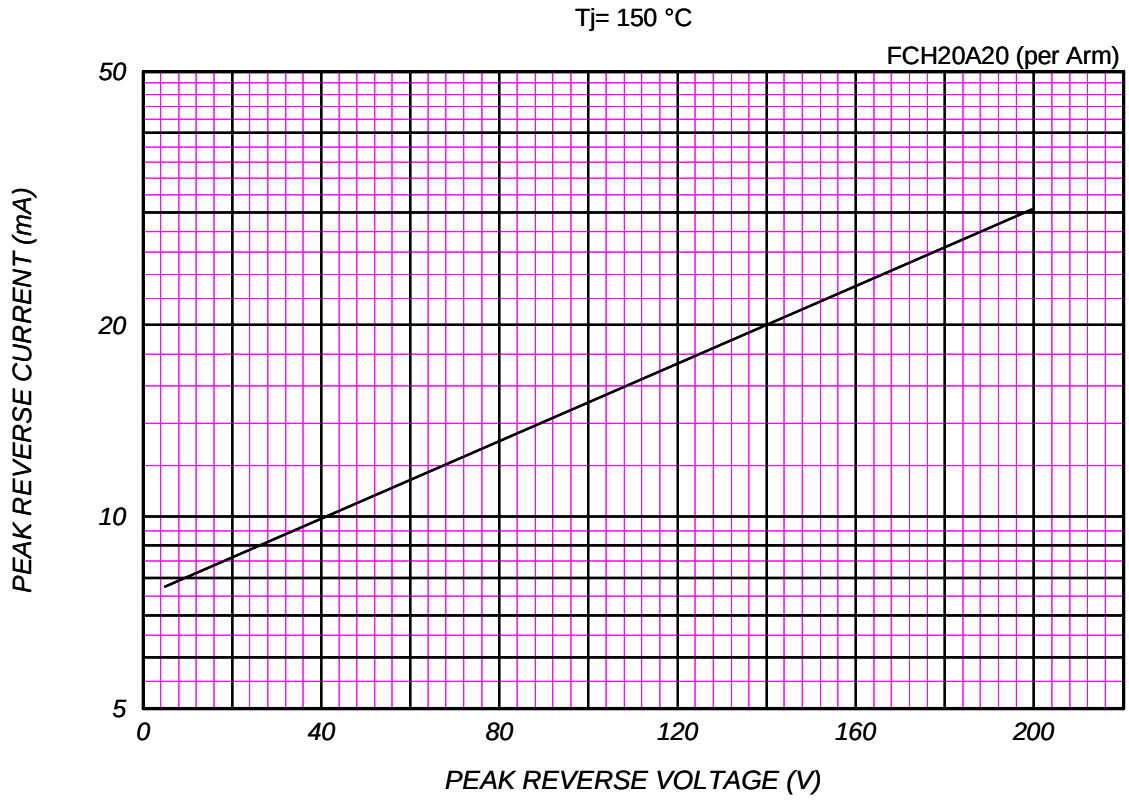




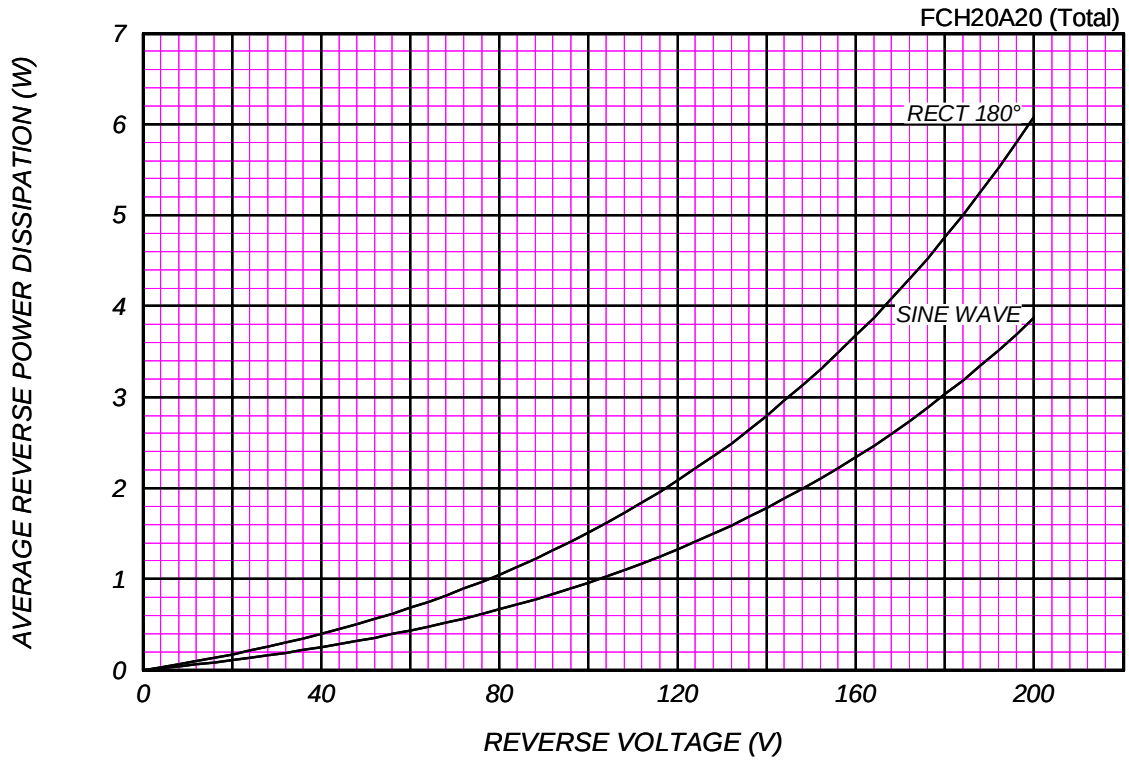
AVERAGE FORWARD POWER DISSIPATION

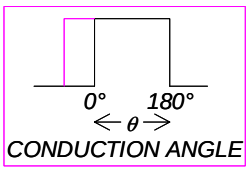


PEAK REVERSE CURRENT VS. PEAK REVERSE VOLTAGE



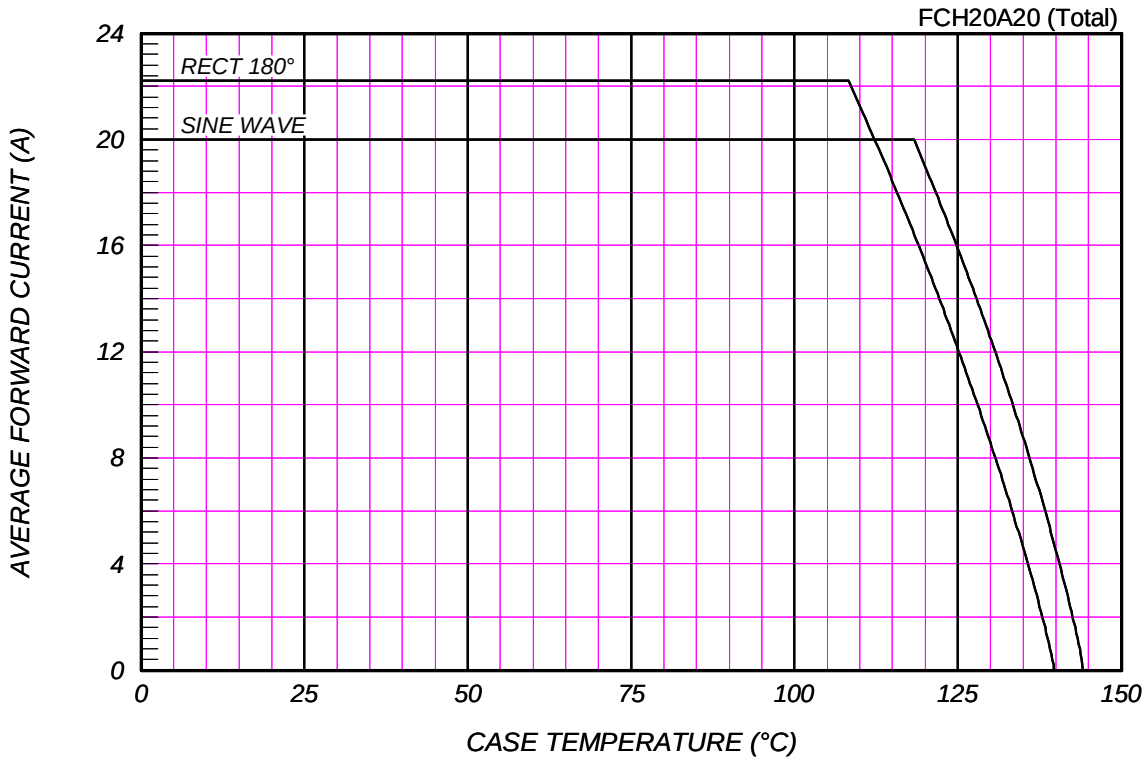
AVERAGE REVERSE POWER DISSIPATION





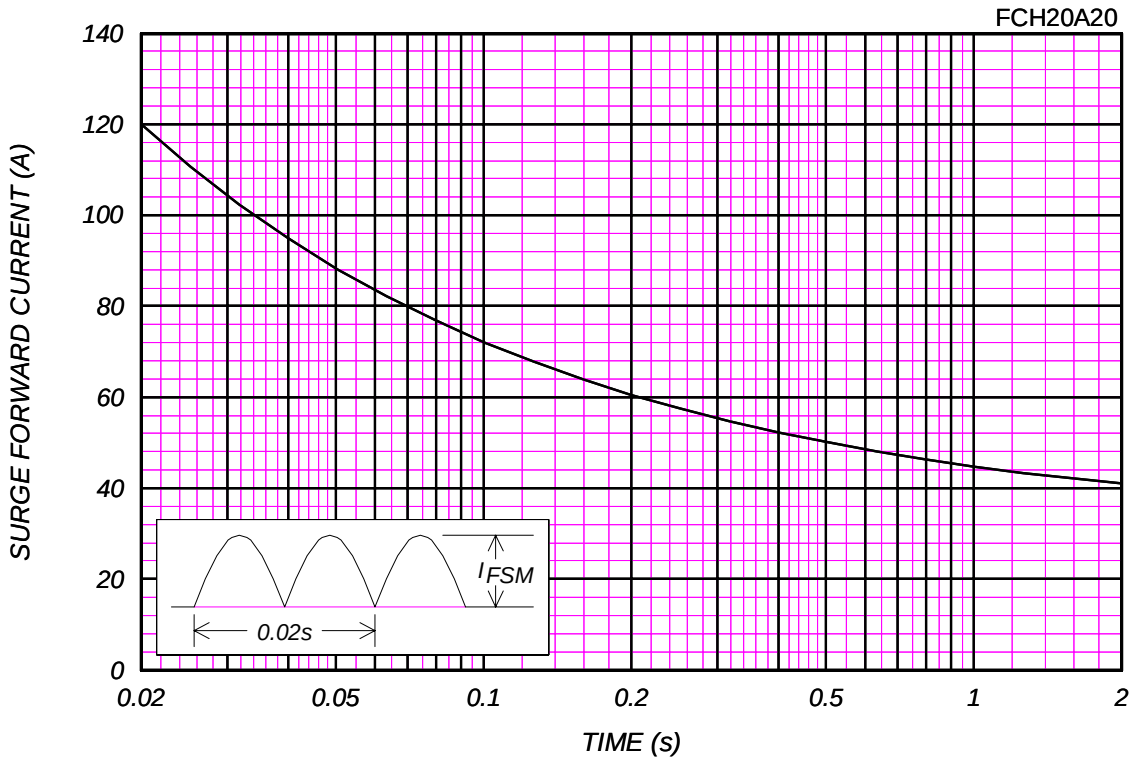
AVERAGE FORWARD CURRENT VS. CASE TEMPERATURE

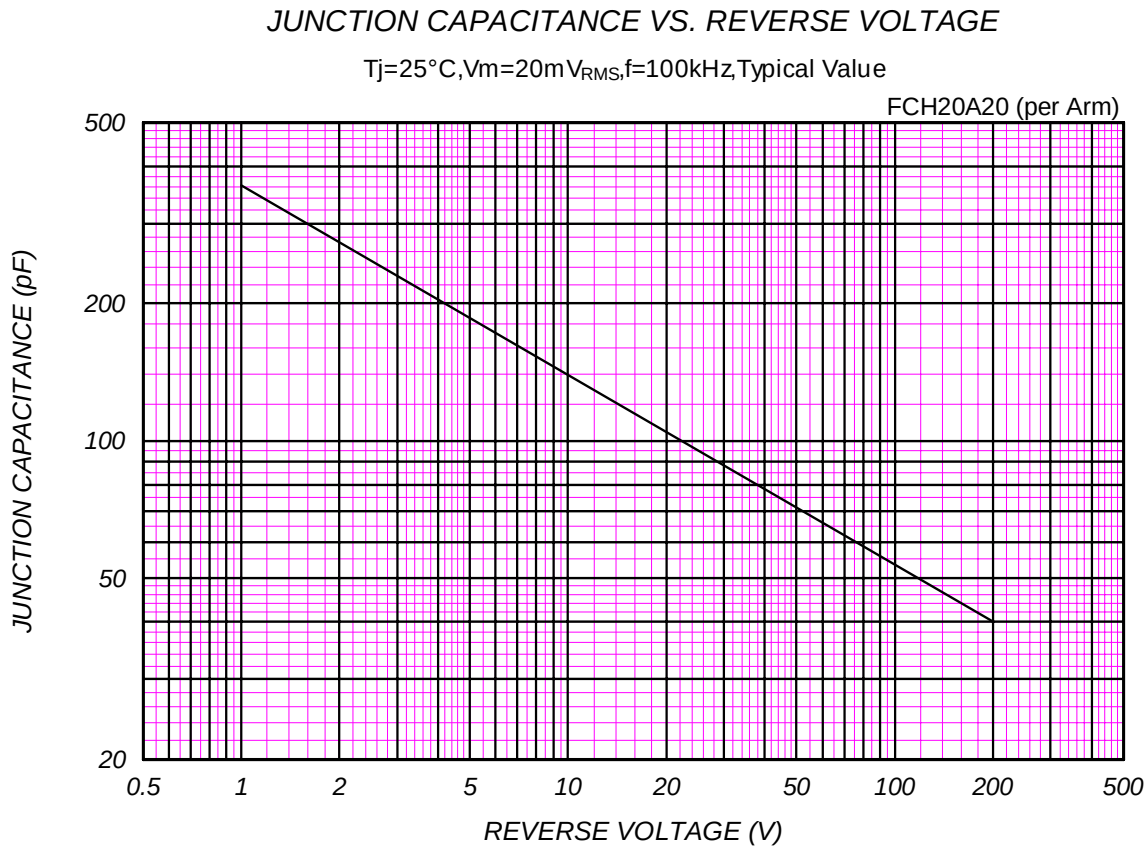
V_{RM}=200V



SURGE CURRENT RATINGS

f=50Hz,Half Sine Wave,Non-Repetitive,No Load




JUNCTION CAPACITANCE VS. REVERSE VOLTAGE
Tj=25°C,Vm=20mVRMS,f=100kHz,Typical Value
FCH20A20 (per Arm)
JUNCTION CAPACITANCE (pF)
500
200
100
50
20
0.5
1
2
5
10
20
50
100
200
500
REVERSE VOLTAGE (V)

FAIRCHILD SEMICONDUCTOR®

May 2001

QFET™

FQPF27P06

60V P-Channel MOSFET

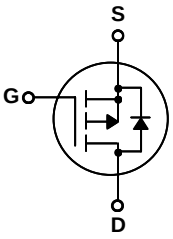
General Description

These P-Channel enhancement mode power field effect transistors are produced using Fairchild's proprietary, planar stripe, DMOS technology.
This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand a high energy pulse in the avalanche and commutation modes. These devices are well suited for low voltage applications such as automotive, DC/DC converters, and high efficiency switching for power management in portable and battery operated products.

Features

- -17A, -60V, $R_{DS(on)}$ = 0.07Ω @V_{GS} = -10 V
- Low gate charge (typical 33 nC)
- Low Crss (typical 120 pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- 175°C maximum junction temperature rating

TO-220F
FQPF Series



Absolute Maximum Ratings

T_C = 25°C unless otherwise noted

Symbol	Parameter		FQPF27P06	Units
V_{DSS}	Drain-Source Voltage		-60	V
I_D	Drain Current - Continuous (T_C = 25°C)		-17	A
	- Continuous (T_C = 100°C)		-12	A
I_{DM}	Drain Current - Pulsed	(Note 1)	-68	A
V_{GSS}	Gate-Source Voltage		± 25	V
E_{AS}	Single Pulsed Avalanche Energy	(Note 2)	560	mJ
I_{AR}	Avalanche Current	(Note 1)	-17	A
E_{AR}	Repetitive Avalanche Energy	(Note 1)	4.7	mJ
dv/dt	Peak Diode Recovery dv/dt	(Note 3)	-7.0	V/ns
P_D	Power Dissipation (T_C = 25°C)		47	W
	- Derate above 25°C		0.31	W/°C
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +175	°C
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds		300	°C

Thermal Characteristics

Symbol	Parameter	Typ	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	--	3.19	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	--	62.5	°C/W

Elerical Characteristics

T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = -250 μA	-60	--	--	V
ΔBV_{DSS} / ΔT_J	Breakdown Voltage Temperature Coefficient	I_D = -250 μA, Referenced to 25°C	--	-0.06	--	V/°C
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -60 V, V_{GS} = 0 V	--	--	-1	μA
		V_{DS} = -48 V, T_C = 150°C	--	--	-10	μA
I_{GSSF}	Gate-Body Leakage Current, Forward	V_{GS} = -25 V, V_{DS} = 0 V	--	--	-100	nA
I_{GSSR}	Gate-Body Leakage Current, Reverse	V_{GS} = 25 V, V_{DS} = 0 V	--	--	100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250 μA	-2.0	--	-4.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS} = -10 V, I_D = -8.5 A	--	0.055	0.07	Ω
g_{FS}	Forward Transconductance	V_{DS} = -30 V, I_D = -8.5 A (Note 4)	--	12	--	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = -25 V, V_{GS} = 0 V, f = 1.0 MHz	--	1100	1400	pF
C_{oss}	Output Capacitance		--	510	660	pF
C_{rss}	Reverse Transfer Capacitance		--	120	155	pF
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = -30 V, I_D = -13.5 A, R_G = 25 Ω (Note 4, 5)	--	18	45	ns
t_r	Turn-On Rise Time		--	185	380	ns
$t_{d(off)}$	Turn-Off Delay Time		--	30	70	ns
t_f	Turn-Off Fall Time		--	90	190	ns
Q_g	Total Gate Charge	V_{DS} = -48 V, I_D = -27 A, V_{GS} = -10 V (Note 4, 5)	--	33	43	nC
Q_{gs}	Gate-Source Charge		--	6.8	--	nC
Q_{gd}	Gate-Drain Charge		--	18	--	nC
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain-Source Diode Forward Current		--	--	-17	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current		--	--	-68	A
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS} = 0 V, I_S = -17 A	--	--	-4.0	V
t_{rr}	Reverse Recovery Time	V_{GS} = 0 V, I_S = -27 A, dI_F / dt = 100 A/μs (Note 4)	--	105	--	ns
Q_{rr}	Reverse Recovery Charge		--	0.41	--	μC

Notes:
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. L = 2.25mH, I_{AS} = -17A, V_{DD} = -25V, R_G = 25 Ω, Starting T_J = 25°C
3. I_{SD} ≤ -27A, di/dt ≤ 300A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°C
4. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%
5. Essentially independent of operating temperature

Typical Characteristics

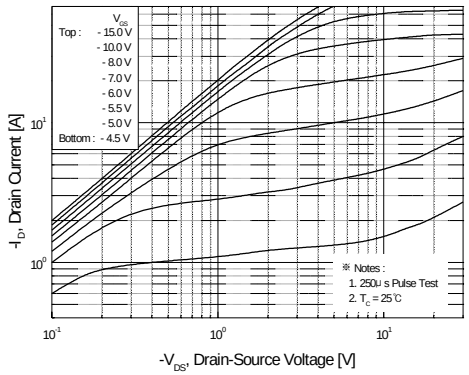


Figure 1. On-Region Characteristics

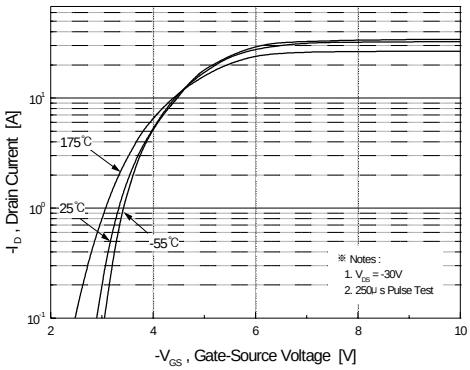


Figure 2. Transfer Characteristics

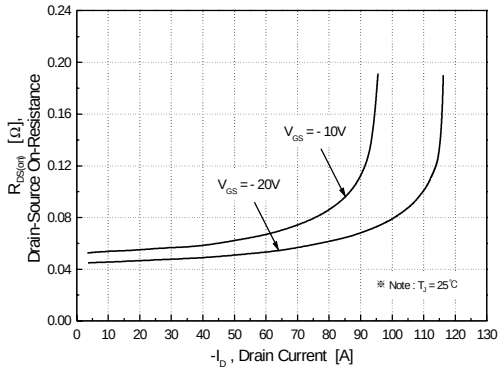


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

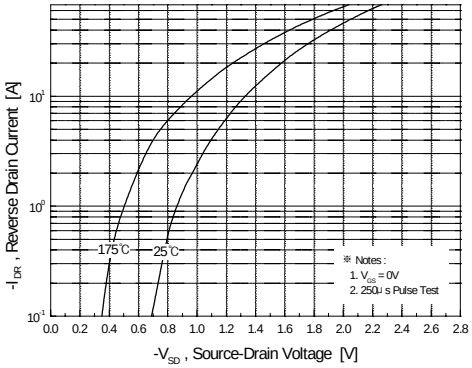


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

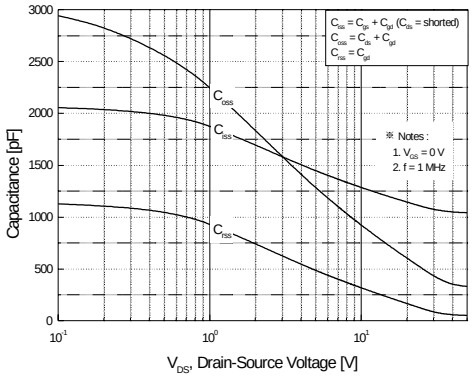


Figure 5. Capacitance Characteristics

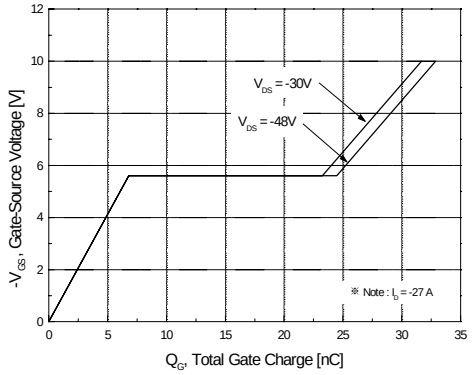


Figure 6. Gate Charge Characteristics

Typical Characteristics (Continued)

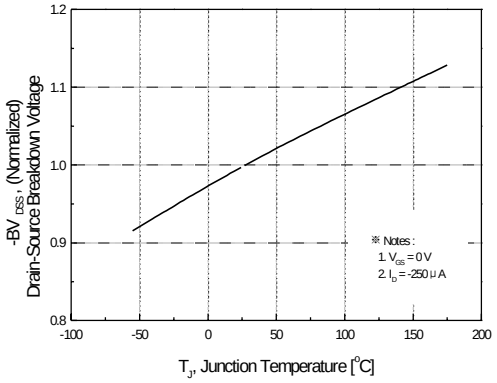


Figure 7. Breakdown Voltage Variation vs. Temperature

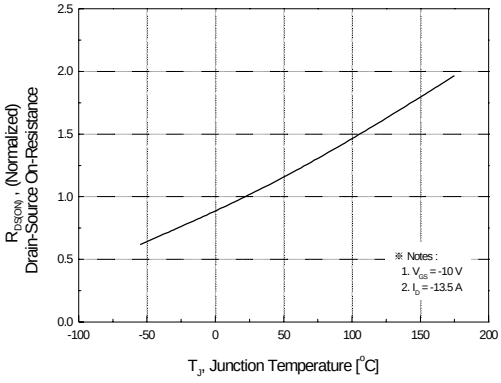


Figure 8. On-Resistance Variation vs. Temperature

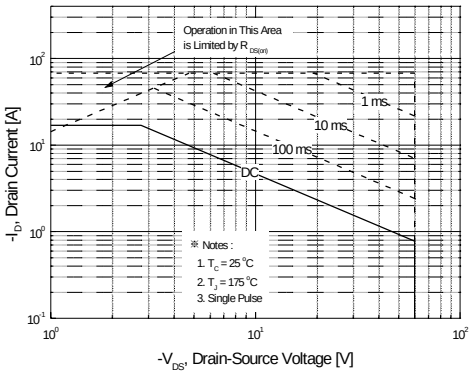


Figure 9. Maximum Safe Operating Area

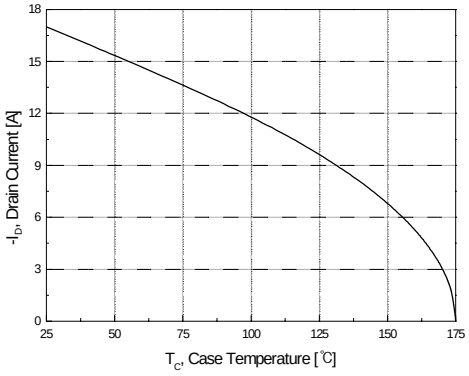


Figure 10. Maximum Drain Current vs. Case Temperature

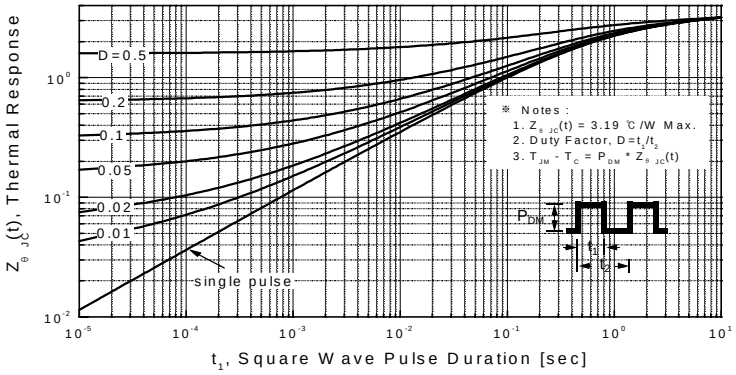
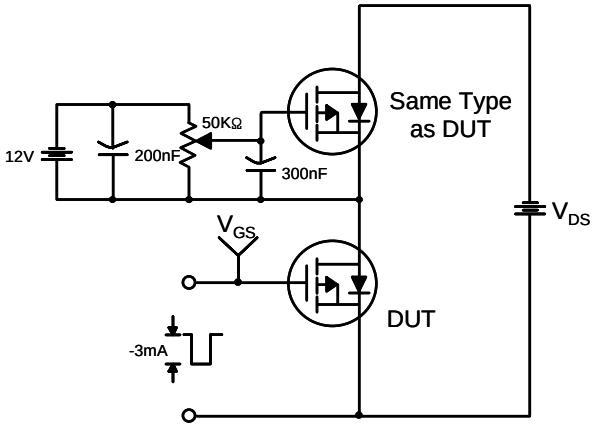
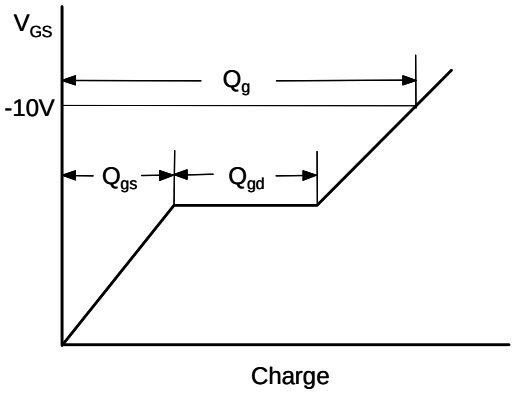


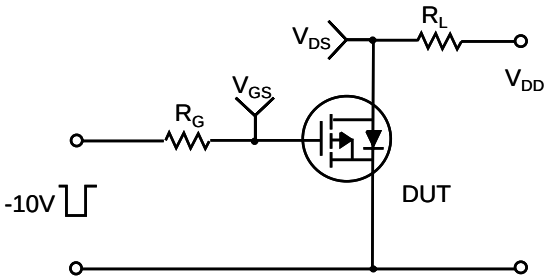
Figure 11. Transient Thermal Response Curve

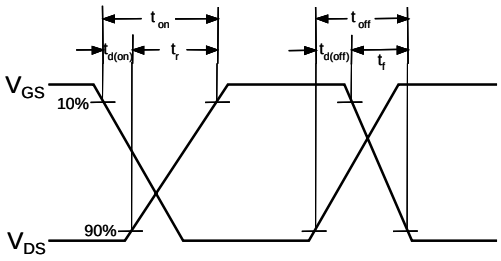
Gate Charge Test Circuit & Waveform



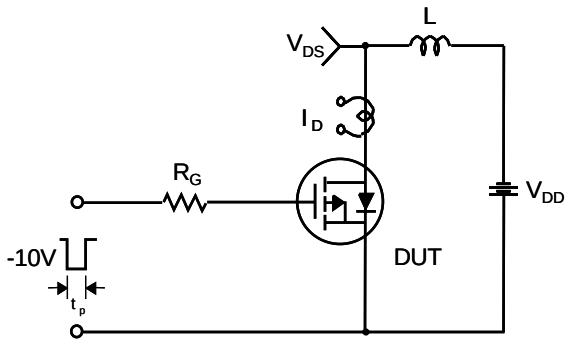


Resistive Switching Test Circuit & Waveforms

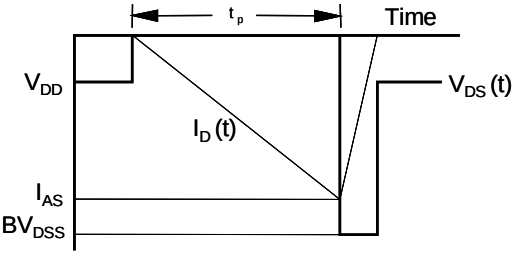




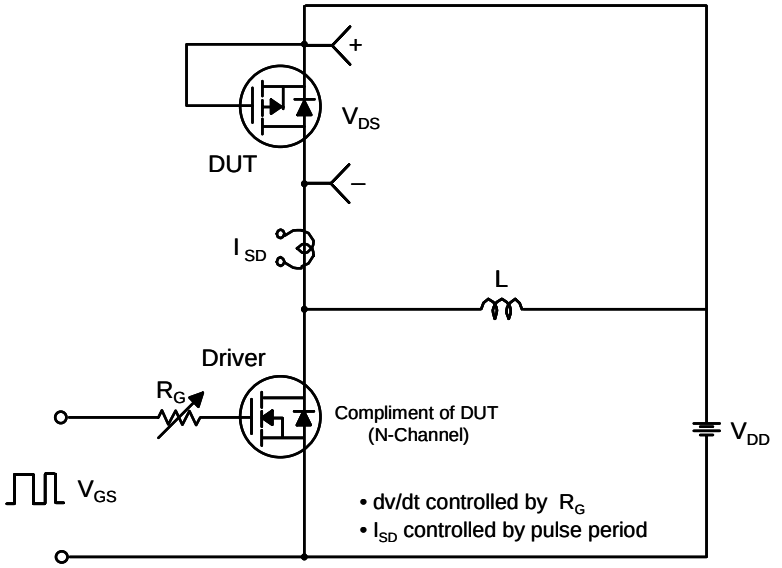
Unclamped Inductive Switching Test Circuit & Waveforms

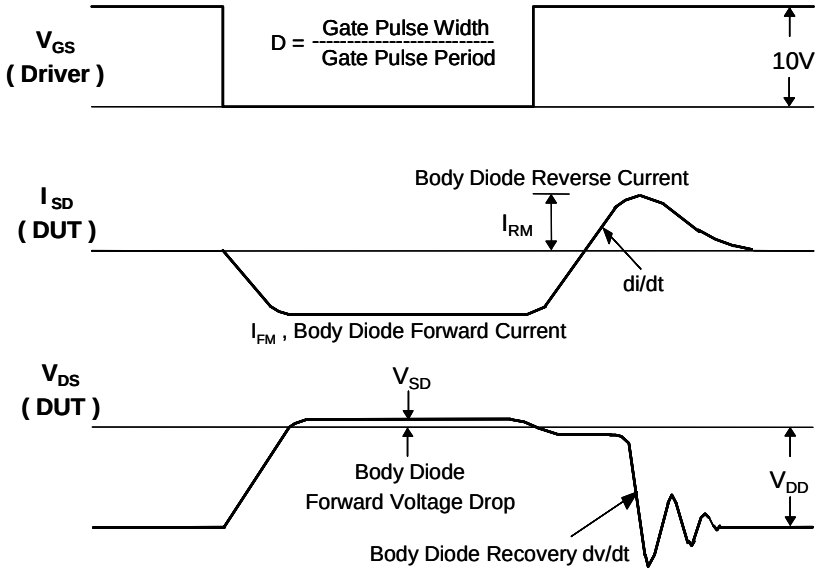


$$E_{AS} = \frac{1}{2} L I_{AS}^2 \frac{BV_{DSS}}{BV_{DSS} - V_{DD}}$$



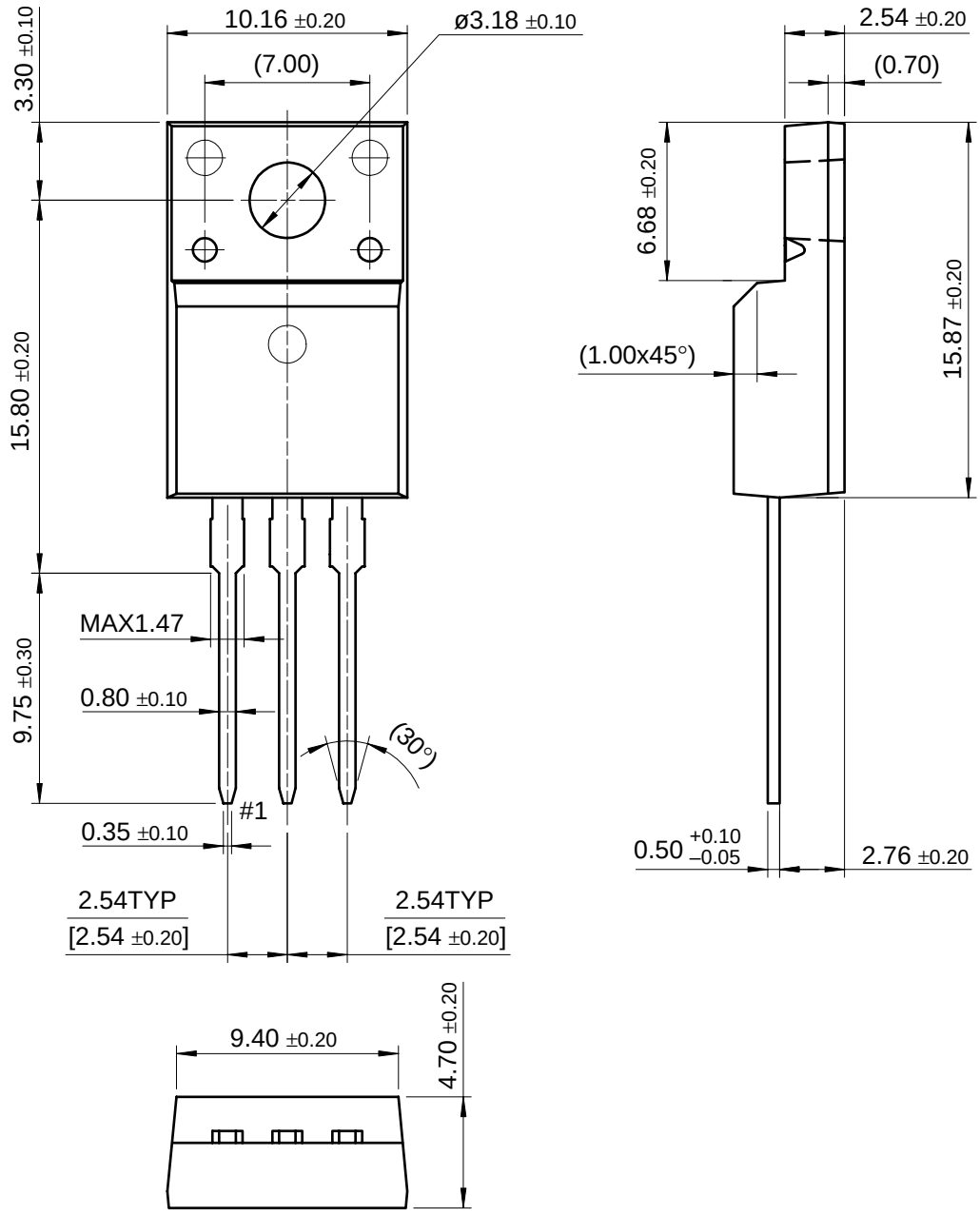
Peak Diode Recovery dv/dt Test Circuit & Waveforms





Package Dimensions

TO-220F



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QFET™
QS™
QT Optoelectronics™
Quiet Series™
SLIENT SWITCHER®
SMART START™
Stealth™
SuperSOT™-3
SuperSOT™-6
SuperSOT™-8
SyncFET™
TinyLogic™
UHC™
UltraFET®
VCX™

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As used herein:

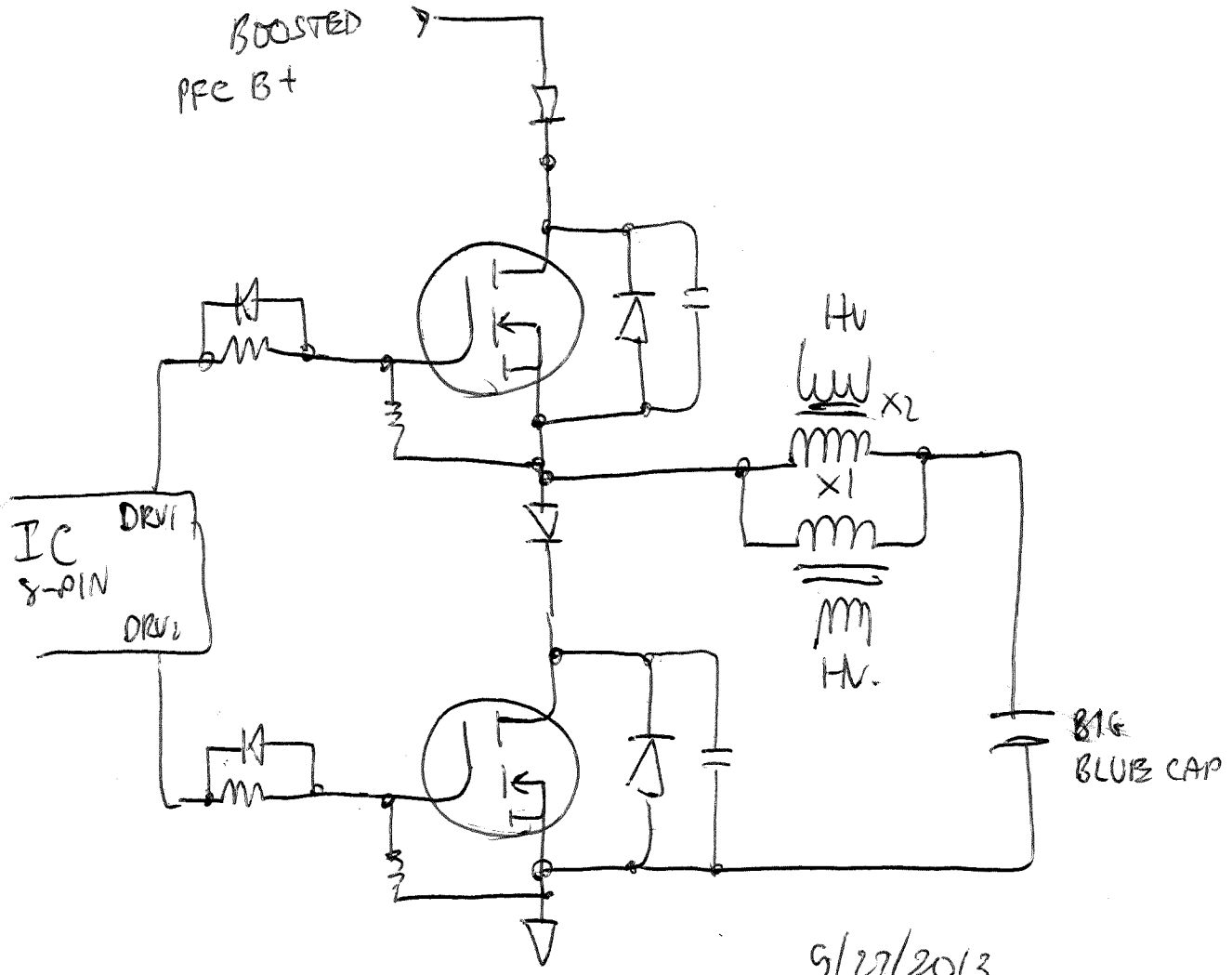
1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.



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