

File Number 1762

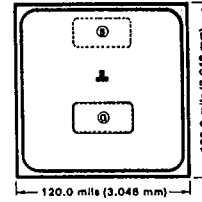
PCF12N08L

## N-Channel Enhancement-Mode Power Field-Effect Transistor Chip

80 V, 12 A, 0.2 Ω

### Features:

- **Contact metallization:**  
 Gate and source-aluminum  
 Drain-tri-metal (Al-Ti-Ni)
- **Assembly recommendations:**  
 Gate and source-10-mil aluminum wire  
 Drain-mounted with 95/5 lead-tin solder
- **Die Number-09526**
- **Device types that are derived from PCF12N08L-**  
 RFM12N08L RFP12N08L  
 RFM12N10L RFP12N10L



ATTACH AREAS: 92CS-38090  
 (S) Source 0.020" x 0.040" (0.508 mm x 1.016 mm)  
 (G) Gate  
 Back Side - Drain  
 DIE THICKNESS - 14 ± 1 mils (0.356 ± 0.025 mm)

CHIP LAYOUT

### Electrical Characteristics at 25°C

The chip is 100% probed to the actual conditions and limits specified.

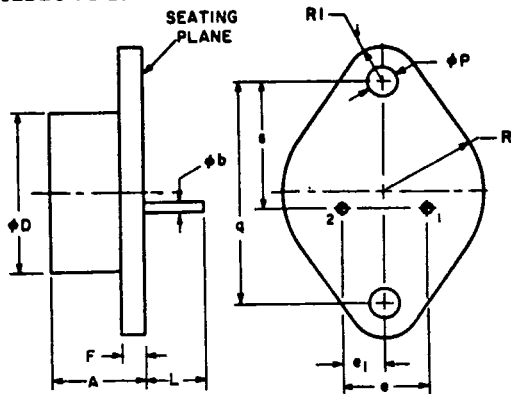
Characteristic	Test Conditions	Limits		Units
		PCF12N08L		
		Min.	Max.	
$BV_{DSS}$	$I_o=1 \text{ mA}$ $V_{GS}=0$	80	—	V
$V_{GS(th)}$	$V_{GS}=V_{DS}$ $I_o=1 \text{ mA}$	1	2	V
$I_{DSS}$	$V_{DS}=65 \text{ V}$	—	1	μA
$I_{GSS}$	$V_{GS}=\pm 10 \text{ V}$ $V_{DS}=0$	—	100	nA
$V_{DS(ON)}^a$	$I_o=6 \text{ A}$ $V_{GS}=5 \text{ V}$	—	1.2	V
$g_{fs}^a$	$V_{DS}=10 \text{ V}$ $I_o=6 \text{ A}$	2	—	mho

<sup>a</sup>Pulsed; pulse duration=300 μs max., duty factor=2%.

Dimensional Outlines and Mounting Hardware

Dimensional Outlines

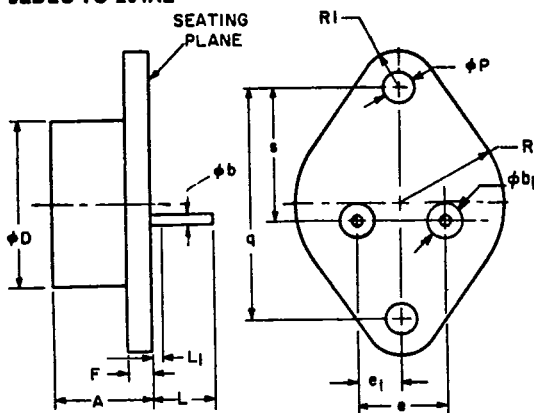
JEDEC TO-204AA



SYMBOL	INCHES		MILLIMETERS		NOTE
	MIN.	MAX.	MIN.	MAX.	
A	0.250	0.450	6.4	11.4	
phi b	0.038	0.043	0.968	1.092	
phi D	—	0.875	—	22.22	
e	0.420	0.440	10.67	11.17	
e1	0.205	0.225	5.21	5.71	
F	—	0.135	—	3.42	
L	0.312	—	7.93	—	
phi P	0.151	0.161	3.84	4.08	
q	1.187 BSC		30.15 BSC		
R	—	0.525	—	13.33	
R1	—	0.188	—	4.77	
s	0.655	0.675	16.64	17.14	

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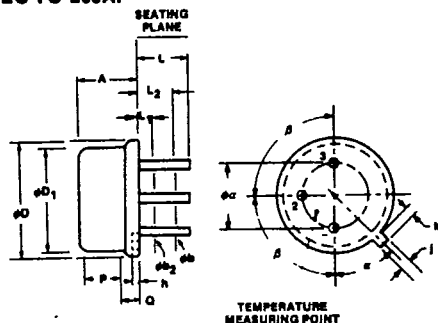
JEDEC TO-204AE



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.250	0.450	6.4	11.4	
phi b	0.057	0.063	1.45	1.60	
phi b1	0.141 NOM		3.58 NOM		
phi D2	—	0.875	—	22.22	
e	0.420	0.440	10.67	11.17	
e1	0.205	0.225	5.21	5.71	
F	0.060	0.135	1.53	3.42	
L	0.440	0.480	11.18	12.19	
phi P	0.151	0.161	3.84	4.08	
q	1.187 BSC		30.15 BSC		
R	0.495	0.525	12.58	13.33	
R1	0.131	0.168	3.33	4.77	
s	0.655	0.675	16.64	17.14	

92CS-37523

JEDEC TO-205AF



Notes:

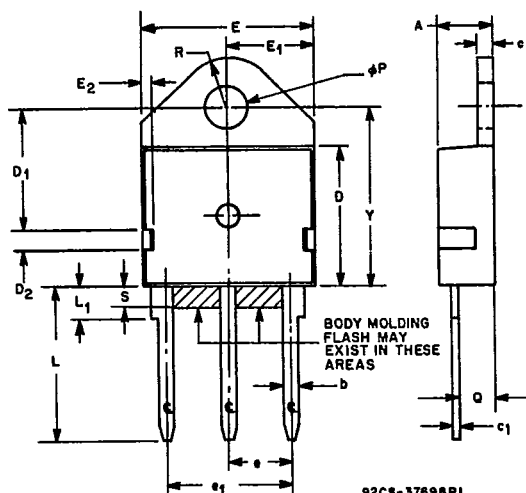
1. Dimension k measured from phi D maximum.
2. phi D1 shall not vary more than 0.010 in Zone P. This zone controlled for automatic handling.
3. Details of outline in this zone optional.
4. Leads at gauge plane 0.054-0.055 below seating plane shall be within 0.007 radius of positional tolerance at MMC relative to tab at MMC. Device may be measured by direct methods or by gauge and gauging procedure described on JEDEC gauge drawing GS-1.
5. phi b2 applies between L1 and L2. phi b applies between L2 and L minimum. Diameter is uncontrolled in L1 and beyond L minimum.

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
phi a	0.200 BSC		5.08 BSC		4
A	0.160	0.180	4.07	4.57	
phi b	0.016	0.021	0.41	0.53	5
phi b2	0.016	0.019	0.41	0.48	5
phi D	0.340	0.370	8.64	9.39	
phi D1	0.315	0.355	8.01	9.01	2
h	0.009	0.041	0.23	1.04	
j	0.028	0.034	0.72	0.86	
k	0.029	0.045	0.74	1.14	1
L	0.500	0.750	12.70	19.05	5
L1	—	0.050	—	1.27	5
L2	0.250	—	6.35	—	5
P	0.070	—	1.78	—	2
Q	—	0.050	—	1.27	3
alpha	45° NOMINAL				
beta	90° NOMINAL				

92CS-38248R1

Dimensional Outlines

JEDEC TO-218AC



92CS-37698R1

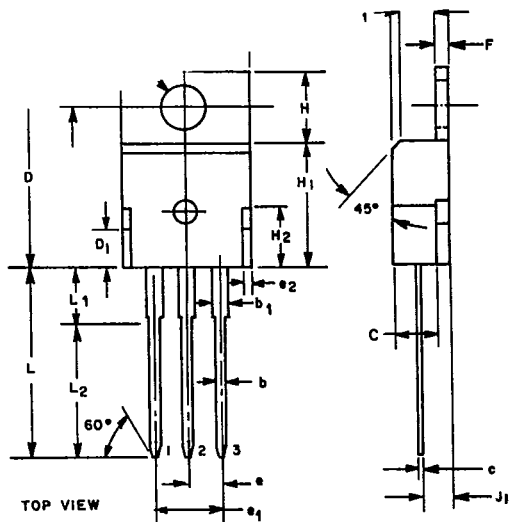
Notes:

- 1: Tab outline optional within boundaries of dimensions E and R.
- 2: Lead dimensions uncontrolled in L<sub>1</sub>.
- 3: Controlling dimensions: Inch.

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	.165	.200	4.191	5.080	1
b	.040	.063	1.016	1.600	
c	.053	.065	1.346	1.651	
c <sub>1</sub>	.018	.030	.457	.762	
D	.485	.505	12.319	12.827	
D <sub>1</sub>	.395	.415	10.033	10.541	
D <sub>2</sub>	.070	.090	1.778	2.286	
E	.610	.640	15.494	16.256	
E <sub>1</sub>	.305	.320	7.747	8.128	
E <sub>2</sub>	.040	.060	1.016	1.524	
e	.205	.225	5.207	5.715	
e <sub>1</sub>	.420	.440	10.688	11.176	
L	.500	.610	12.700	15.494	
L <sub>1</sub>	—	.125	—	3.175	
phi P	.157	.167	3.988	4.241	
Q	.094	.126	2.388	3.200	
R	.170	.190	4.318	4.826	
S	—	0.60	—	1.524	
Y	.626	.670	15.900	17.018	

92CS-37698R1

JEDEC TO-220AB



92CS-34697R1

NOTES:

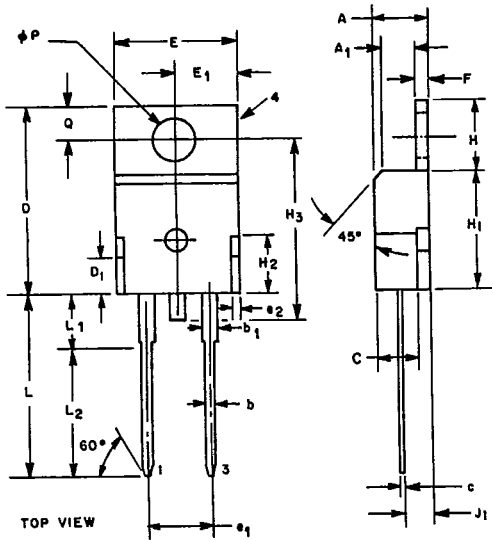
- 1. Position of lead to be measured 0.250-0.255 in. (6.350-6.477 mm) from case.

SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.140	0.190	3.56	4.82
A <sub>1</sub>	0.080	0.085	2.03	2.16
b	0.020	0.045	0.51	1.14
b <sub>1</sub>	0.045	0.070	1.14	1.77
C	—	0.125	—	3.18
c	0.015	0.025	0.38	0.63
D	0.560	0.625	14.23	15.87
D <sub>1</sub>	—	0.100	—	2.54
E	0.380	0.420	9.66	10.66
e	0.090	0.110	2.29	2.79
e <sub>1</sub>	0.190	0.210	4.83	5.33
e <sub>2</sub>	—	0.030	—	0.76
F	0.045	0.055	1.14	1.39
H	0.230	0.270	5.85	6.85
H <sub>1</sub>	0.355	0.370	9.02	9.40
H <sub>2</sub>	—	0.160	—	4.06
J <sub>1</sub>	0.080	0.115	2.04	2.92
L	0.500	0.562	12.70	14.27
L <sub>1</sub>	—	0.250	—	6.35
L <sub>2</sub>	0.400	0.410	10.16	10.41
phi P	0.139	0.161	3.531	4.089
Q	0.100	0.120	2.54	3.04

92CS-34697R1

Dimensional Outlines

JEDEC TO-220AC



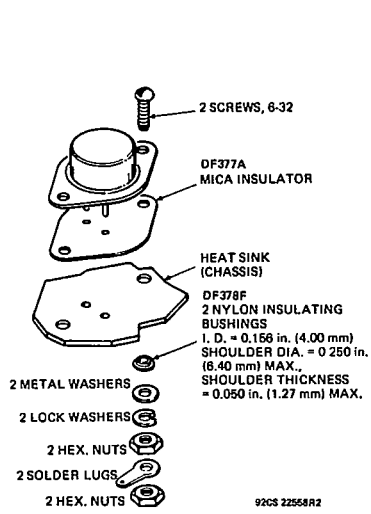
SYMBOL	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	0.140	0.190	3.56	4.82
A <sub>1</sub>	0.080	0.085	2.03	2.16
b	0.020	0.045	0.51	1.14
b <sub>1</sub>	0.045	0.070	1.14	1.77
C	—	0.125	—	3.18
c	0.015	0.025	0.38	0.63
D	0.560	0.825	14.23	15.87
D <sub>1</sub>	—	0.100	—	2.54
E	0.380	0.420	9.66	10.66
e <sub>1</sub>	0.190	0.210	4.83	5.33
e <sub>2</sub>	—	0.030	—	0.76
F	0.045	0.055	1.14	1.39
H	0.230	0.270	5.85	6.85
H <sub>1</sub>	0.355	0.370	9.02	9.40
H <sub>2</sub>	—	0.160	—	4.06
H <sub>3</sub>	—	0.600	—	15.24
J <sub>1</sub>	0.080	0.115	2.04	2.92
L	0.500	0.562	12.70	14.27
L <sub>1</sub>	—	0.250	—	6.35
L <sub>2</sub>	0.400	0.410	10.16	10.41
phi P	0.139	0.161	3.531	4.089
Q	0.100	0.120	2.54	3.04

NOTES:

1. Position of lead to be measured 0.250-0.255 in. (6.350-6.477 mm) from case.

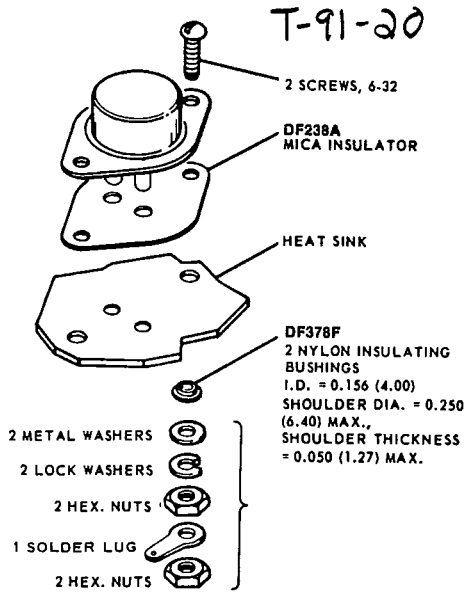
92CS-34830R1

Mounting Hardware

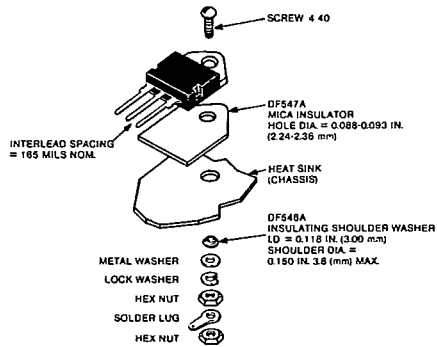


NOTE: MAXIMUM TORQUE APPLIED TO MOUNTING FLANGE IS 12 in.-lbs. (0.14 kgf-m)

Suggested mounting hardware for JEDEC TO-204AA (formerly JEDEC TO-3)



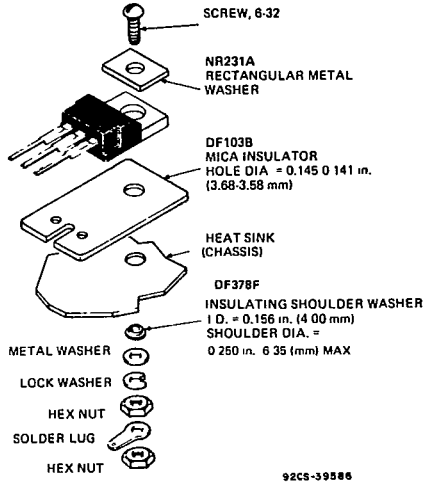
Suggested mounting hardware for JEDEC TO-204AE (formerly JEDEC TO-3)



Suggested mounting hardware for JEDEC TO-218AC

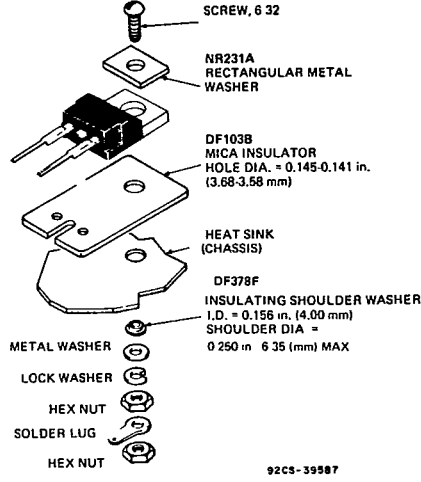
T-91-20

Mounting Hardware



NOTE: MAXIMUM TORQUE APPLIED TO MOUNTING  
FLANGE IS 8 in. lb. (0.09 kgf m)

Suggested mounting hardware for JEDEC TO-220AB



NOTE: MAXIMUM TORQUE APPLIED TO MOUNTING  
FLANGE IS 8 in. lb. (0.09 kgf m)

Suggested mounting hardware for JEDEC TO-220AC