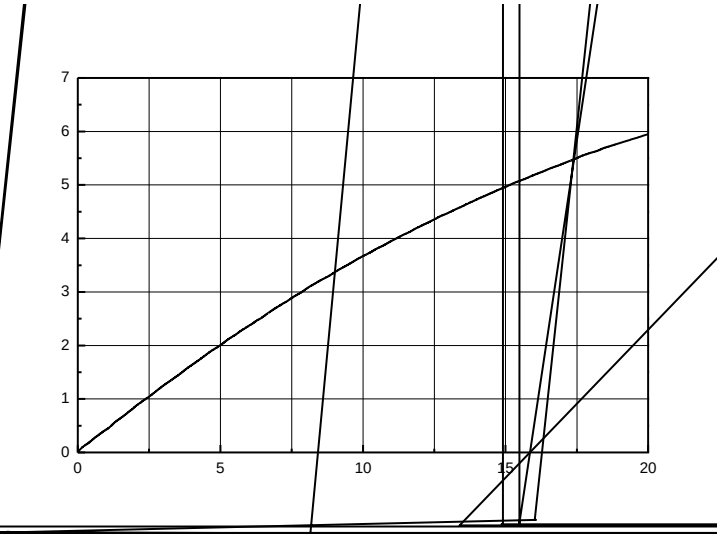
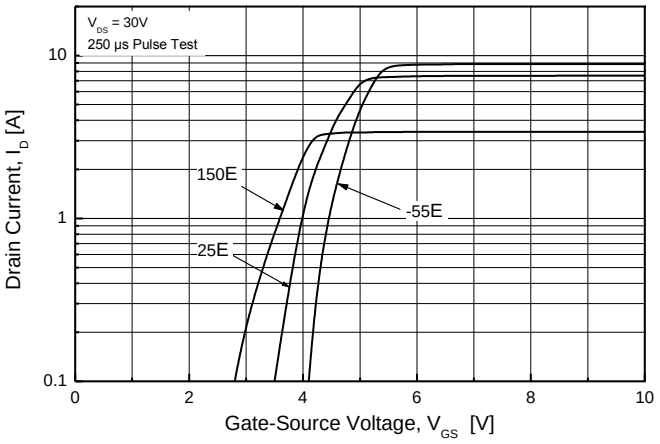
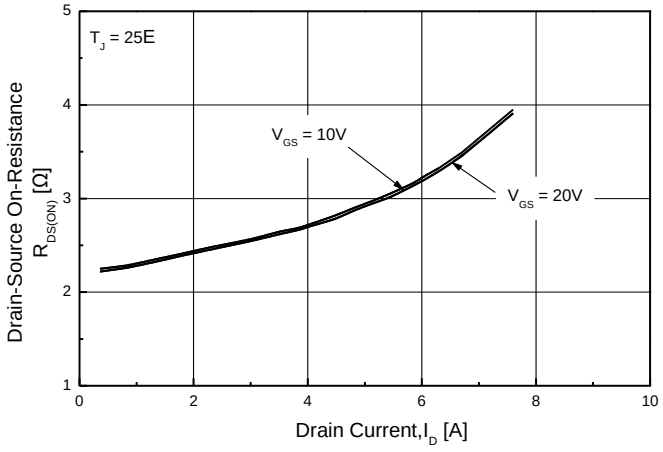
Electrical Characteristics : T_C=25E , unless otherwise noted

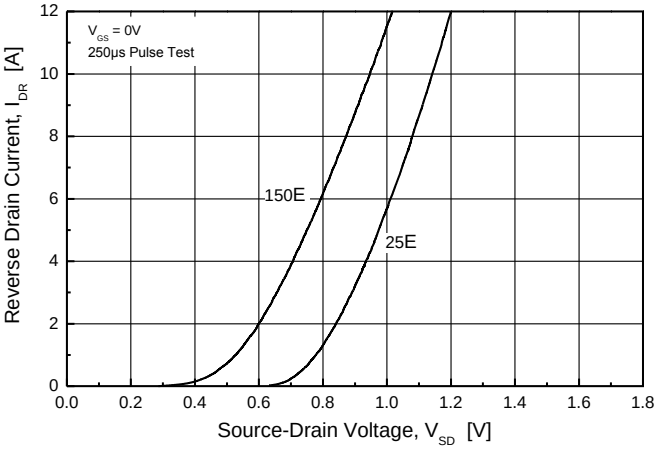
Parameter	Symbol	Test condition	Min	Typ	Max	Units
OFF						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_D = 250 µA	800	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 800 V, V_{GS} = 0 V	--	--	10	µA
		V_{DS} = 640 V, T_C = 125°C	--	--	100	µA
Forward Gate-Source Leakage Current	I_{GSSF}	V_{GS} = 30 V, V_{DS} = 0 V	--	--	100	nA
Reverse Gate-Source Leakage Current	I_{GSSR}	V_{GS} = -30 V, V_{DS} = 0 V	--	--	-100	nA
ON						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA	2	--	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10 V, I_D = 2 A	--	2.5	3.0	Ω
Forward Transconductance (Note 4)	g_{FS}	V_{DS} = 30 V, I_D = 2 A	--	3.7	--	S
DYNAMIC						
Input Capacitance	C_{iss}	V_{DS} = 25 V, V_{GS} = 0 V, f = 1.0 MHz	--	1020	--	pF
Output Capacitance	C_{oss}		--	77	--	pF
Reverse Transfer Capacitance	C_{rss}		--	10.3	--	pF
SWITCHING						
Turn-On Delay Time (Note 4,5)	$t_{d(on)}$	V_{DD} = 400 V, I_D = 4 A, R_G = 25 Ω	--	22	--	ns
Turn-On Rise Time (Note 4,5)	t_r		--	25	--	ns
Turn-Off Delay Time (Note 4,5)	$t_{d(off)}$		--	84	--	ns
Turn-Off Fall Time (Note 4,5)	t_f		--	27	--	ns
Total Gate Charge (Note 4,5)	Q_g	V_{DS} = 640V, I_D = 4 A, V_{GS} = 10 V	--	21	--	nC
Gate-Source Charge (Note 4,5)	Q_{gs}		--	3.2	--	nC
Gate-Drain Charge (Note 4,5)	Q_{gd}		--	7.8	--	nC
SOURCE DRAIN DIODE						
Maximum Continuous Drain-Source Diode Forward Current	I_S	---	--	--	4	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	---	--	--	16	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S				

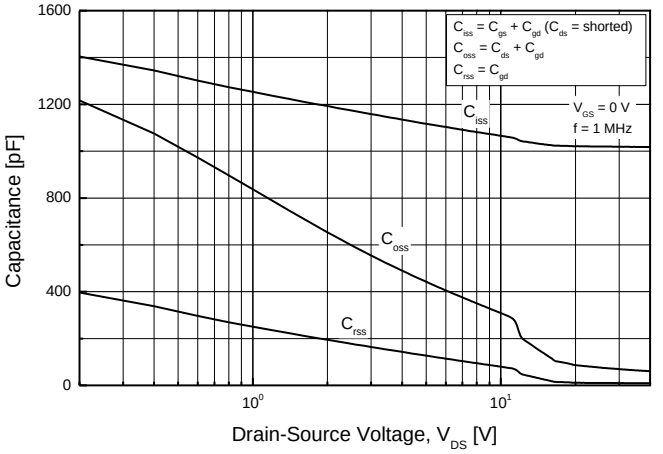
Note :
1. Repeated rating : Pulse width limited by safe operating area
2. L= 8.9mH, I_{AS} = 4A, V_{DD} = 50V, R_G = 25Ω, Starting T_J= 25 E
3 I_{SD} ≤ 4A, di/dt ≤ 200A/µs , V_{DD} ≤ BV_{DS}, Starting T_J= 25 E
4. Pulse Test :Pulse width ≤ 300µs, Duty Cycle ≤ 2%
5. Essentially Independent of Operating Temperature Typical Characteristics

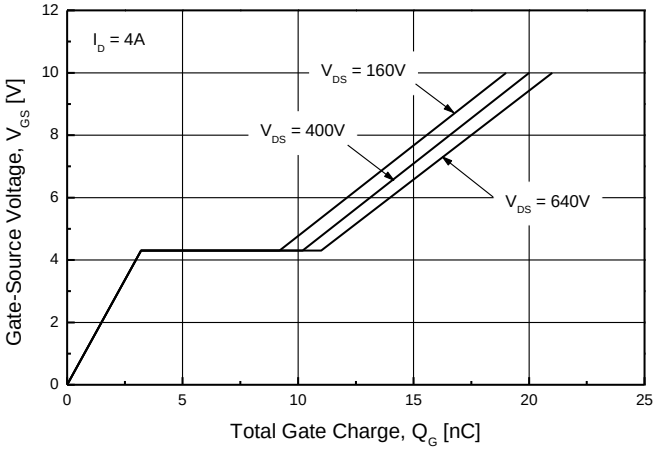

0
1
2
3
4
5
6
7
0
5
10
15
20

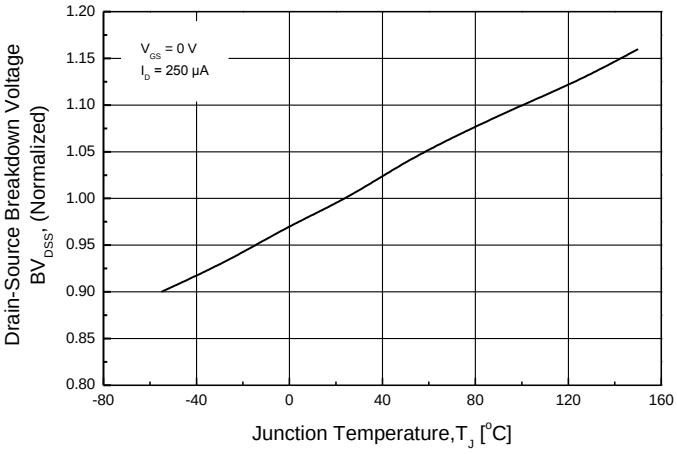

V_{DS} = 30V
250 μs Pulse Test
150E
-55E
25E
Drain Current, I_D [A]
Gate-Source Voltage, V_{GS} [V]
10
1
0.1
0
2
4
6
8
10

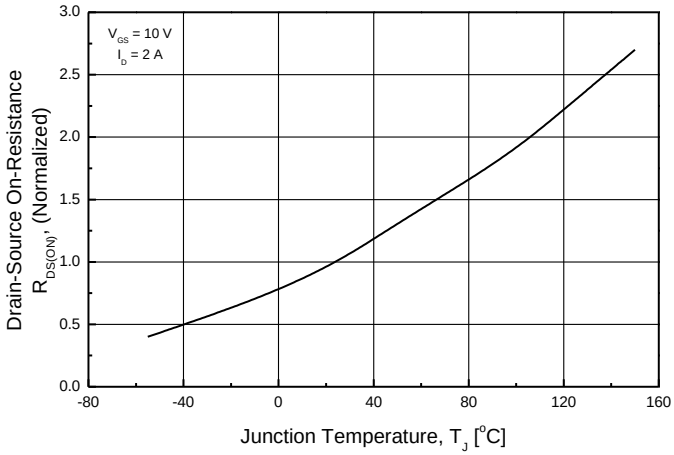

T_J = 25E
V_{GS} = 10V
V_{GS} = 20V
Drain-Source On-Resistance
$R_{DS(ON)}$ [Ω]
Drain Current,I_D [A]
1
2
3
4
5
0
2
4
6
8
10

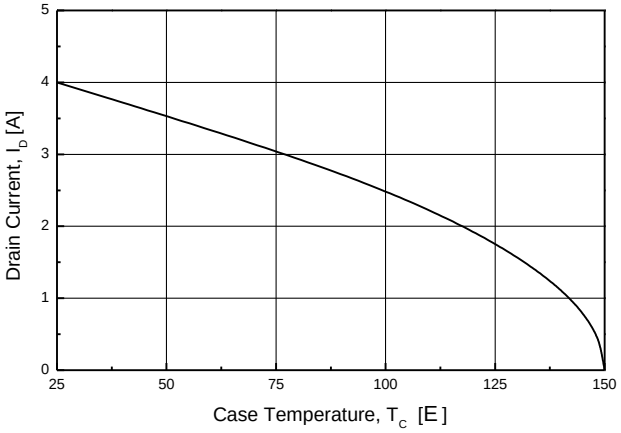

V_{GS} = 0V
250μs Pulse Test
150E
25E
Reverse Drain Current, I_{DR} [A]
Source-Drain Voltage, V_{SD} [V]
0
2
4
6
8
10
12
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8

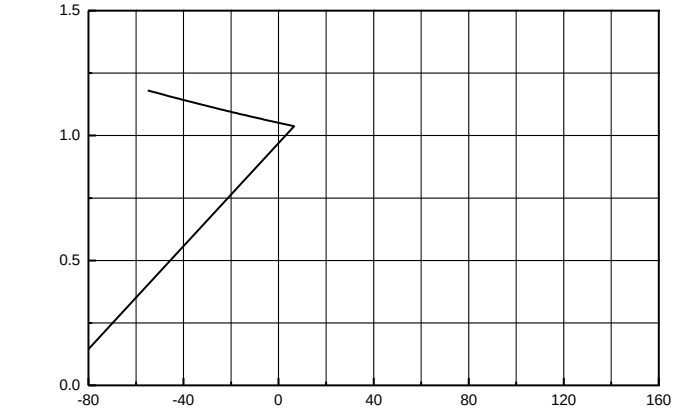

$C_{iss} = C_{gs} + C_{gd}$ (C_{ds} = shorted)
$C_{oss} = C_{ds} + C_{gd}$
$C_{rss} = C_{gd}$
V_{GS} = 0 V
f = 1 MHz
C_{iss}
C_{oss}
C_{rss}
Capacitance [pF]
Drain-Source Voltage, V_{DS} [V]
0
400
800
1200
1600
10^0
10^1


I_D = 4A
V_{DS} = 160V
V_{DS} = 400V
V_{DS} = 640V
Gate-Source Voltage, V_{GS} [V]
Total Gate Charge, Q_G [nC]
0
2
4
6
8
10
12
0
5
10
15
20
25

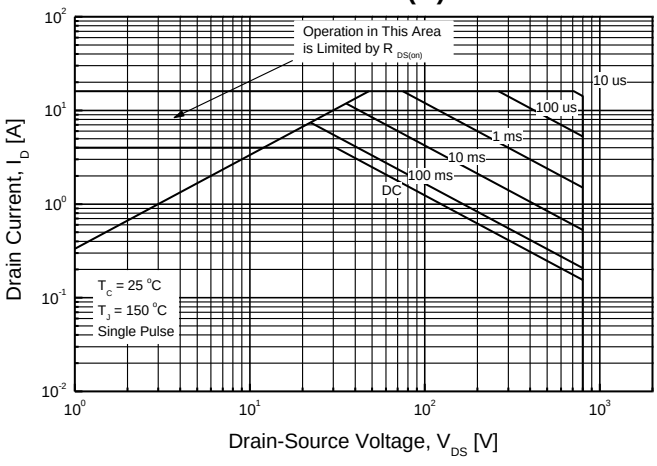




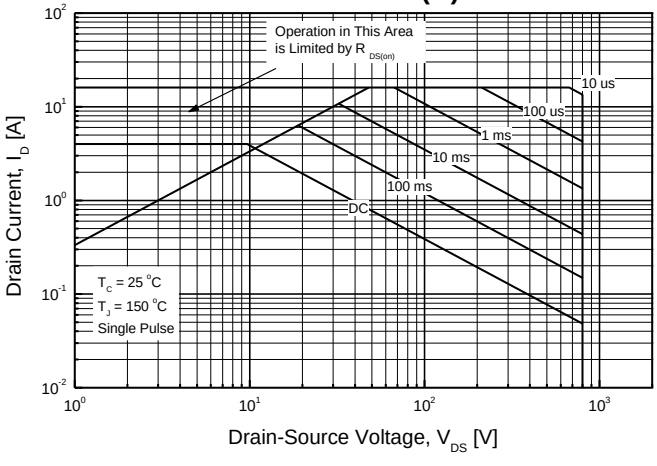




TMP4N80(G)



TMPF4N80(G)



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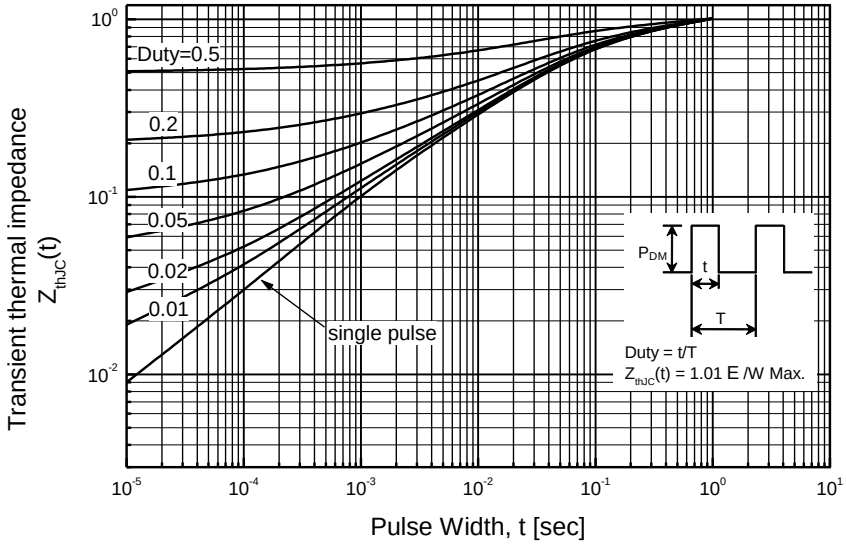
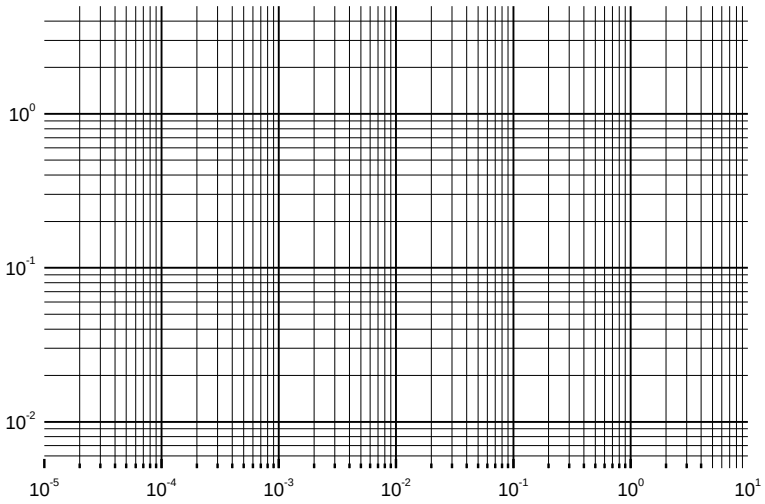
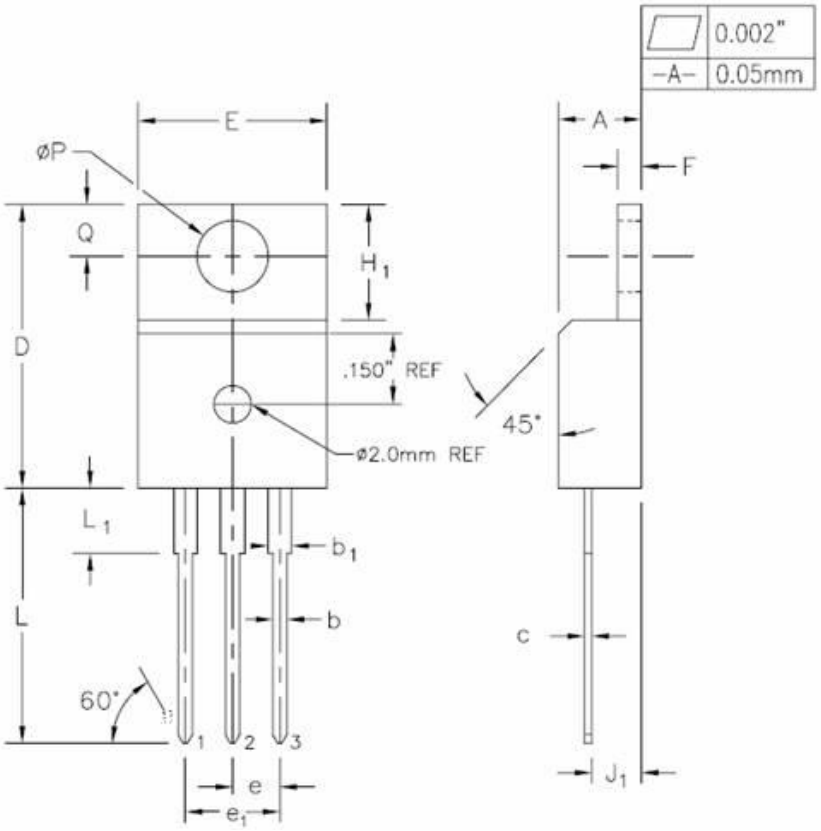


TMPF4N80(G)

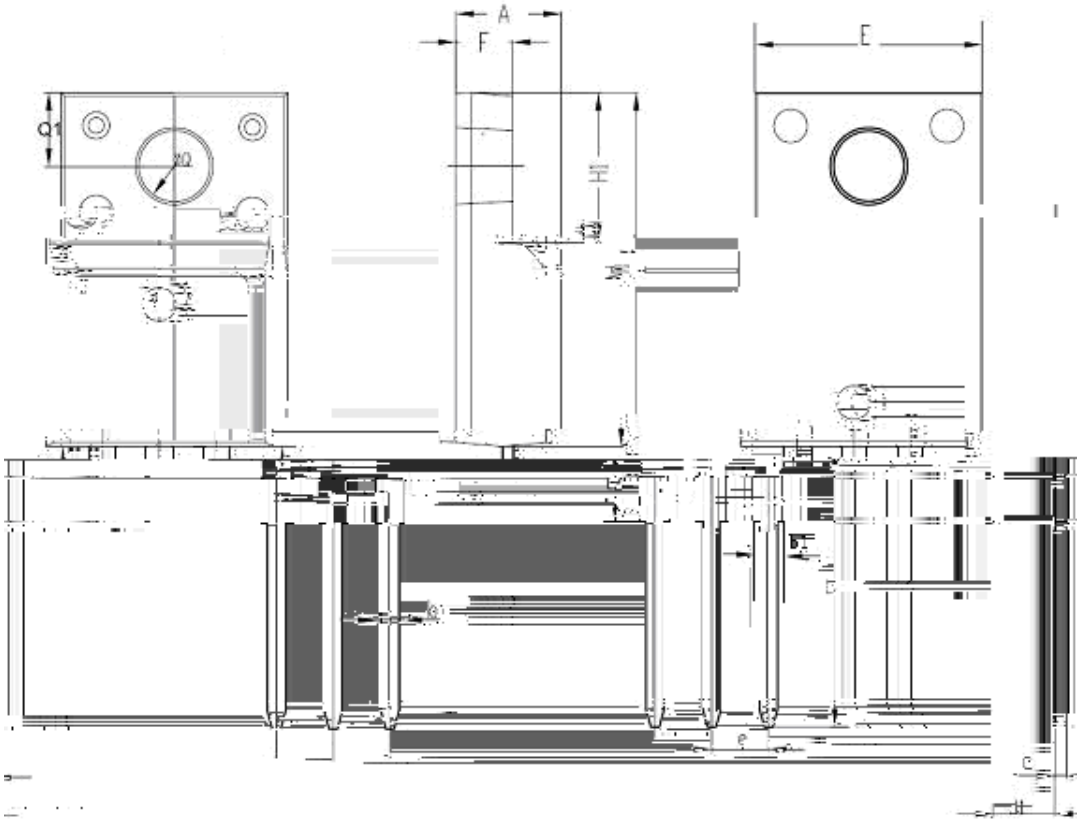


TO-220AB-3L MECHANICAL DATA



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.170	0.180	4.32	4.57	
b	0.028	0.036	0.71	0.91	
b1	0.045	0.055	1.15	1.39	
c	0.014	0.021	0.36	0.53	
D	0.590	0.610	14.99	15.49	

TO-220F-3L MECHANICAL DATA



NC M!	JODI F !		NJMMJNF F !!		O F !
	NJO!	NB !	NJO!	NB !	
B!	1 289!!	1 2 5!!	5 64!!	5 4!!	!
!	1 139!!	1 147!!	1 82!!	1 2!!	!
D!	1 129!	1 135!	1 56!	1 71!	!
E!	1 728!!	1 744!!	26 78!!	27 18!!	!
F!	1 4 3!!	1 519!!	7!!	21 47!!	!
!	1 211! !		3 65 !		!
I 2!	1 367!!	1 383!!	7 61!!	7 1!!	!
2!	1 21 2!!	1 228!!	3 67!!	3 7!!	!
M!	1 614!!	1 62 !!	23 89!!	24 29!!	!
φQ!	1 228!!	1 244!!	3 9!!	4 49!!	!
2!	1 156!!	1 166!!	2 26!!	2 4 !!	!
M2!	1 225!	1 241!!	3 !!	4 4!!	!
2!	1 233!!	1 249!!	4 21!!	4 61!!	!
!	1 1 3!	1 219!	3 45!	3 85!	