



MAXIMUM RATINGS

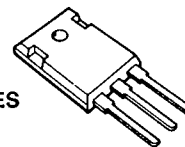
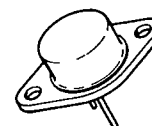
Parameter	Sym.	IXTH75N08 IXTM75N08	IXTH75N10 IXTM75N10	Unit
Drain-Source Voltage (1)	V_{DS}	80	100	V_{dc}
Drain-Gate Voltage ($R_{GS} = 1.0M\Omega$) (1)	V_{DGR}	80	100	V_{dc}
Gate-Source Voltage Continuous	V_{GS}	± 20		V_{dc}
Gate-Source Voltage Transient	V_{GSM}	± 30		V
Drain Current Continuous ($T_C = 25^\circ C$)	I_D	75		A_{dc}
Drain Current Pulsed (3)	I_{DM}	300		A
Total Power Dissipation	P_D	250		W
Power Dissipation Derating $> 25^\circ C$		2.0		W/ $^\circ C$
Operating and Storage Temperature	T_J & T_{stg}	-65 to $+150$		$^\circ C$
Thermal Resistance	R_{thJC}	0.5		$^\circ C/W$
Max. Lead Temp. for Soldering	T_L	300 (1.6mm from case for 10 sec.)		$^\circ C$

T-39-15

MegaMOS™ FETs

IXTH75N10, 08

IXTM75N10, 08

75 Amps, 80–100V, 0.02 Ω IXTH SERIES
TO-247
(TO-3P)IXTM SERIES
TO-204
(TO-3)ELECTRICAL CHARACTERISTICS $T_C = 25^\circ C$ unless otherwise specified

Parameter	Type	Min.	Typ.	Max.	Units	Test Conditions
$V_{(BR)DSS}$ Drain-Source Breakdown Voltage	75N10	100	—	—	V	$V_{GS} = 0V$
	75N08	80	—	—	V	$I_D = 250\mu A$
$V_{GS(th)}$ Gate Threshold Voltage	ALL	2.0	—	4.5	V	$V_{DS} = V_{GS}$, $I_D = 250\mu A$
I_{GSS} Gate-Source Leakage	ALL	—	—	100	nA	$V_{GS} = \pm 20V$
I_{DSS} Zero Gate Voltage Drain Current	ALL	—	—	200	μA	$V_{DS} = 0.8 BV_{DSS}$, $V_{GS} = 0V$
		—	—	1000	μA	$V_{DS} = 0.8 BV_{DSS}$, $V_{GS} = 0V$, $T_C = 125^\circ C$
$R_{DS(on)}$ Static Drain-Source On-State Resistance (2)	ALL	—	—	0.02	Ω	$V_{GS} = 10V$, $I_D = 0.5 I_D \text{ Max.}$
g_{FS} Forward Transconductance (2)	ALL	25.0	28.0	—	S	$V_{DS} > I_{D(on)} \times R_{DS(on)max.}$, $I_D = 0.5 I_D \text{ Max.}$
C_{iss} Input Capacitance	ALL	—	—	4500	pF	$V_{GS} = 0V$, $V_{DS} = 25V$, $f = 1.0 \text{ MHz}$
C_{oss} Output Capacitance	ALL	—	—	500	pF	
C_{rss} Reverse Transfer Capacitance	ALL	—	—	140	pF	
$t_{d(on)}$ Turn-On Delay Time	ALL	—	—	90	ns	$V_{DD} = 0.5 BV_{DSS}$, $I_D = 0.5 I_D \text{ Max.}$ $Z_O = 50\Omega$ (MOSFET switching times are essentially independent of operating temperature. See Fig. 7, page 56 for test circuit.)
t_r Rise Time	ALL	—	—	110	ns	
$t_{d(off)}$ Turn-Off Delay Time	ALL	—	—	200	ns	
t_f Fall Time	ALL	—	—	95	ns	
Q_g Total Gate Charge (Gate-Source Plus Gate-Drain)	ALL	—	200	—	nC	$V_{GS} = 10V$, $I_D = I_D \text{ Max.}$, $V_{DS} = 0.8 BV_{DSS}$, (Gate charge is essentially independent of operating temperature. See Fig. 8, page 56 for test circuit.)
Q_{gs} Gate Source Charge	ALL	—	80	—	nC	
Q_{gd} Gate-Drain ("Miller") Charge	ALL	—	120	—	nC	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS $T_C = 25^\circ C$ unless otherwise specified

I_S Continuous Source Current (Body Diode)	ALL	—	—	75	A	Modified MOSFET symbol showing the integral reverse P-N junction rectifier.	
I_{SM} Pulse Source Current (Body Diode) (1)	ALL	—	—	300	A		
V_{SD} Diode Forward Voltage (2)	ALL	—	—	1.5	V	$I_F = I_S$, $V_{GS} = 0V$	
t_{rr} Reverse Recovery Time	ALL	—	400	—	ns	$V_R = 100V$	
Q_{rr} Reverse Recovery Charge	ALL	—	6.5	—	μC	$T_J = 25^\circ C$	$I_F = I_S$ $dI_F/dt = 100A/\mu S$
		—	13	—		$T_J = 150^\circ C$	

(1) $T_J = 25^\circ C$ to $150^\circ C$ (2) Pulse test: Pulse width $\leq 300\mu S$, duty cycle $\leq 2\%$

(3) Repetitive rating: Pulse width limited by max. junction temperature.

IXTH75N10, 08
IXTM75N10, 08

T-39-15

IXYS

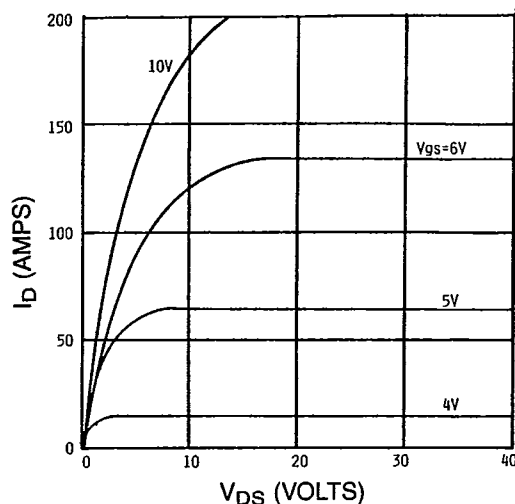


Figure 1. Output Characteristics

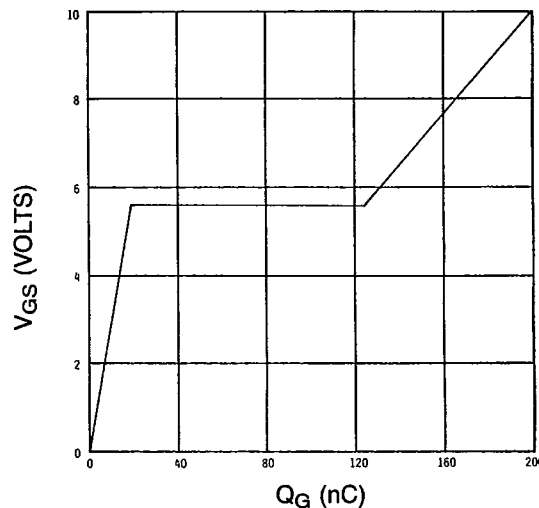


Figure 2. Gate Charge Vs VGS

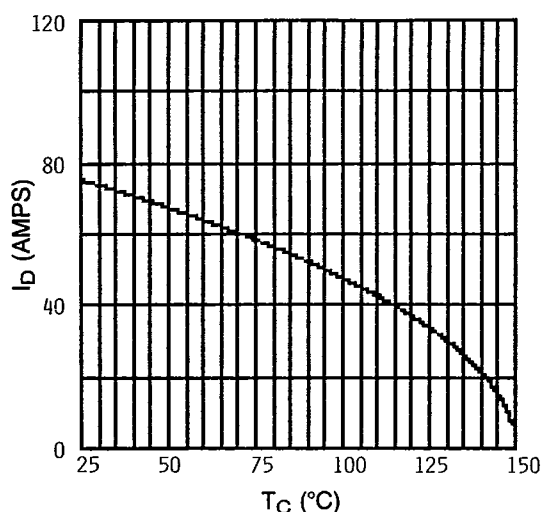


Figure 3. ID Vs Case Temperature

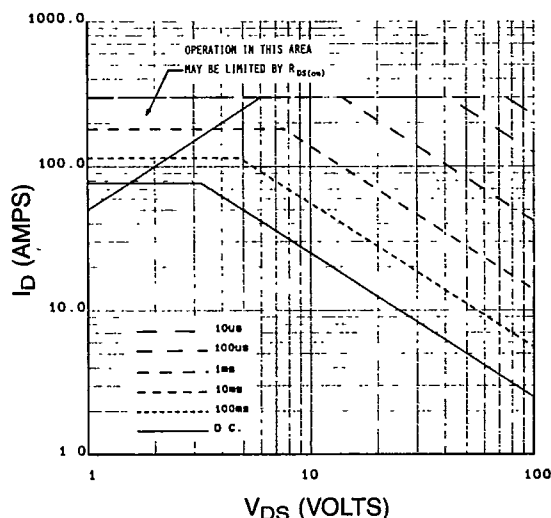


Figure 4. Safe Operating Area

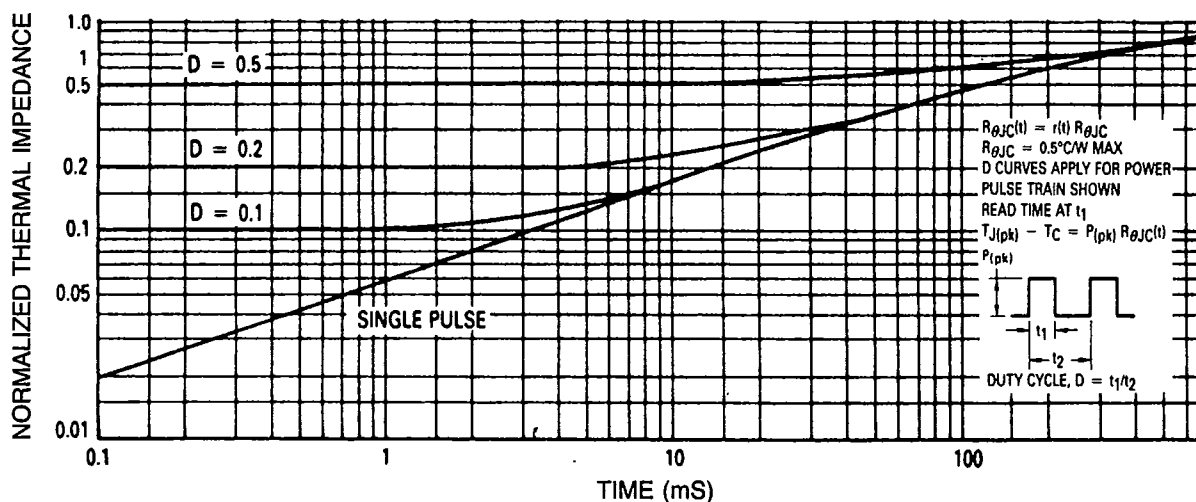
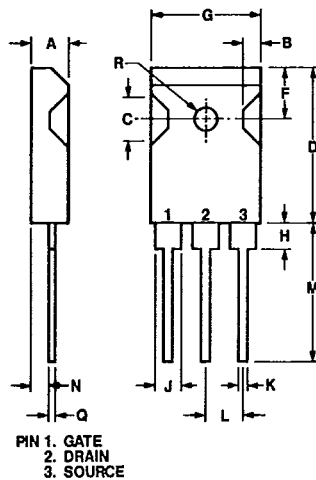


Figure 5. Transient Thermal Impedance

PACKAGE OUTLINES AND PINOUTS

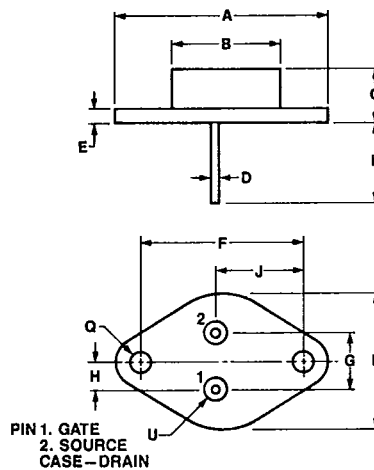
T-91-20

TO-247



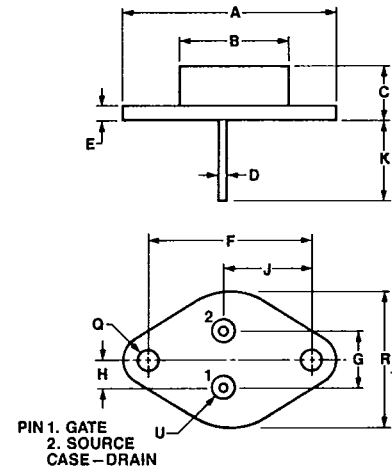
Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.8	5.2	.187	.203
B	1.7	2.7	.067	.106
C	3.1	3.9	.121	.152
D	20.8	21.2	.811	.827
F	5.8	6.2	.226	.242
G	15.7	15.9	.612	.620
H	—	4.5	—	.177
J	1.97	2.01	.077	.078
J ₁	2.97	3.01	.116	.119
K	1	1.4	.039	.055
L	5.25	5.65	.207	.222
M	19.8	20.2	.772	.778
N	2.2	2.4	.086	.094
Q	.4	.8	.016	.031
R	3.1	3.3	.121	.129

TO-204 AA



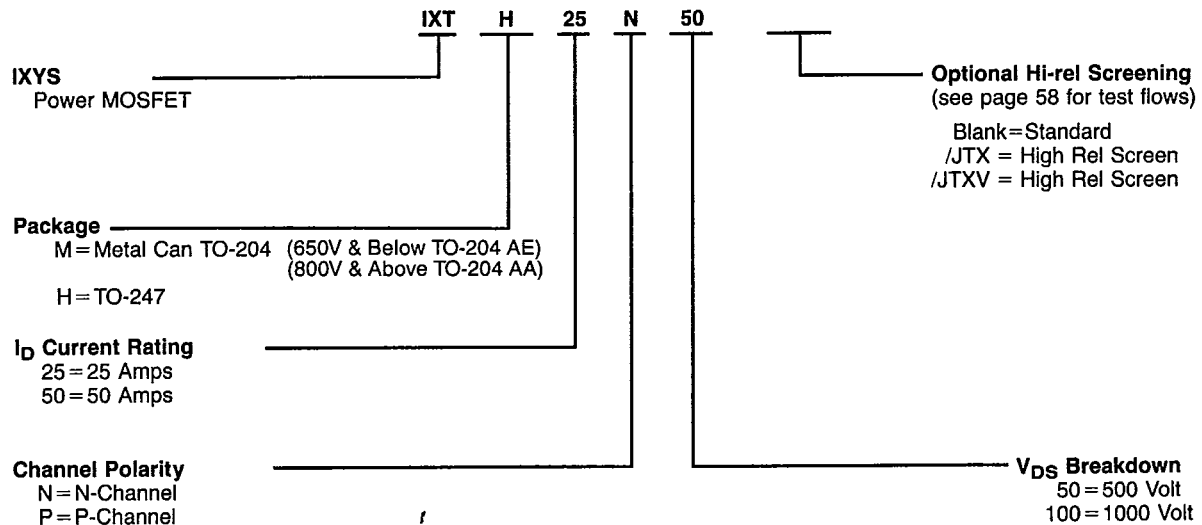
Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	—	39.37	—	1.55
B	—	19.71	—	.776
C	8.96	9.22	.353	.363
D	.097	1.09	.038	.043
E	2.66	2.92	.105	.115
F	30.15	BSC	1.187	BSC
G	10.74	11.05	.423	.435
H	5.46	BSC	.215	BSC
J	16.68	17.12	.657	.674
K	11.20	11.98	.441	.472
Q	3.86	4.11	.152	.162
R	24.84	25.27	.978	.995
U	4.19	5.56	.165	.203

TO-204 AE



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	—	39.37	—	1.55
B	—	19.71	—	.776
C	8.96	9.22	.353	.363
D	1.45	1.63	.58	.062
E	2.66	2.92	.105	.115
F	30.15	BSC	1.187	BSC
G	10.74	11.05	.423	.435
H	5.46	BSC	.215	BSC
J	16.68	17.12	.657	.674
K	11.20	11.98	.441	.472
Q	3.86	4.11	.152	.162
R	24.84	25.27	.978	.995
U	4.19	5.56	.165	.203

PART NUMBER DESCRIPTION

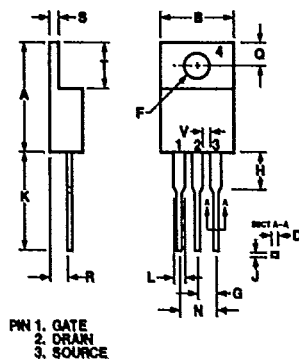


Note: Valid combinations are only those referenced in the IXYS price book or product selector guide. Consult your local IXYS sales office to confirm availability of specific combinations or new types.

DETAILED PACKAGE OUTLINES

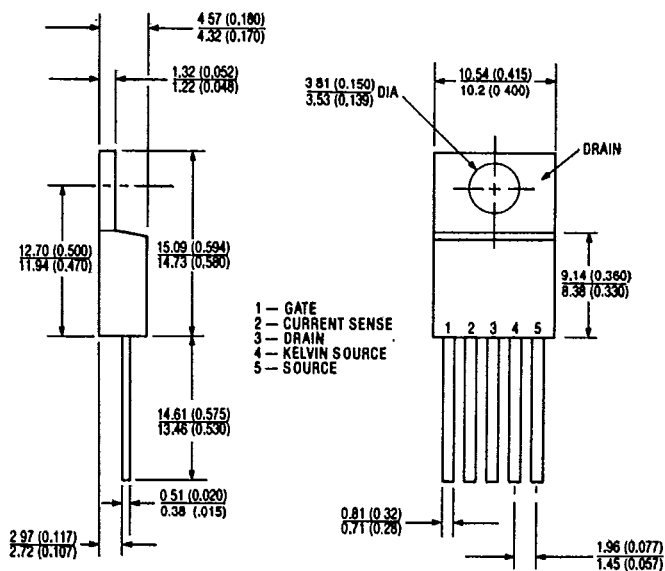
T-91-20

TO-220 AB

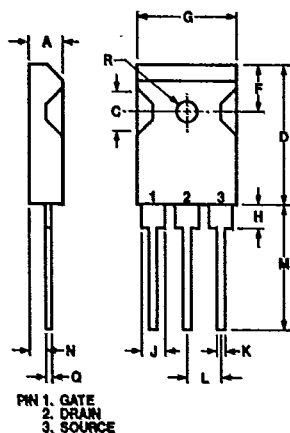


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	14.23	16.51	.560	.650
B	9.66	10.66	.380	.420
C	3.56	4.82	.140	.190
D	0.64	0.89	.025	.035
F	3.54	4.08	.139	.161
G	2.29	2.79	.090	.110
H	—	6.35	—	.250
J	0.51	.76	.020	.030
K	12.70	14.73	.500	.580
L	1.15	1.77	.045	.070
N	4.83	5.33	.190	.210
Q	2.54	3.42	.100	.135
R	2.04	2.49	.080	.115
S	0.64	1.39	.025	.055
T	5.85	6.85	.230	.270
V	1.15	—	.045	—

CONFORMS TO OUTLINE TO-220 (IR H-7)
Dimensions in Millimeters (Inches)

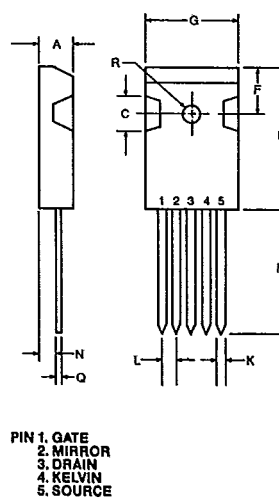


TO-247 (3 LEADED)



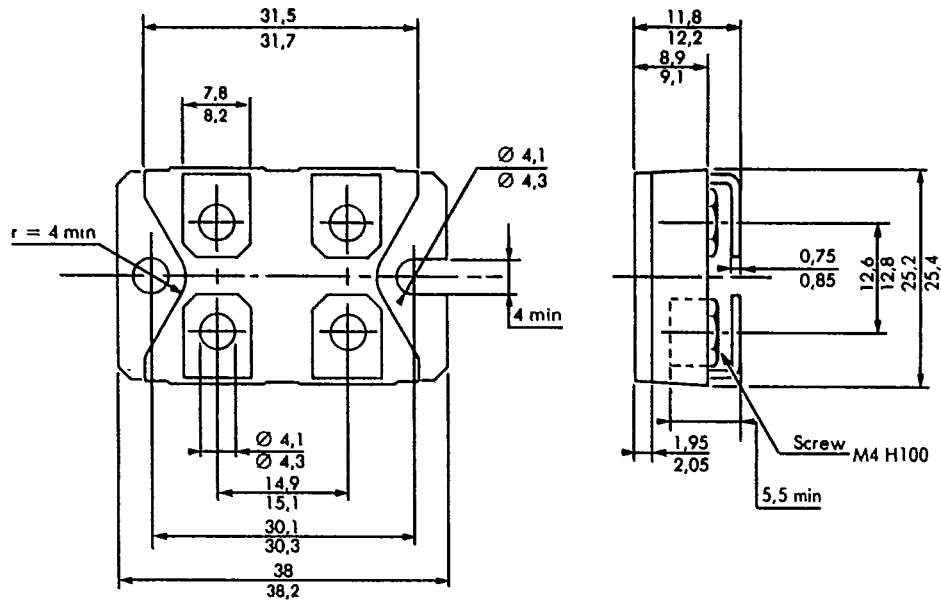
Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
C	4.5	6.0	.178	.236
D	19.7	21.4	.776	.843
F	5.3	6.1	.209	.240
G	15.3	15.9	.602	.625
H	3.7	4.3	.146	.169
J	1.95	2.4	.077	.094
J ₁	2.97	3.4	.117	.134
K	1.0	1.4	.040	.055
L	5.4	5.5	.213	.217
M	19.9	20.2	.783	.795
N	2.2	2.6	.087	.102
Q	0.4	0.8	.016	.031
R	2.9	3.3	.114	.129

TO-247 (5 LEADED)

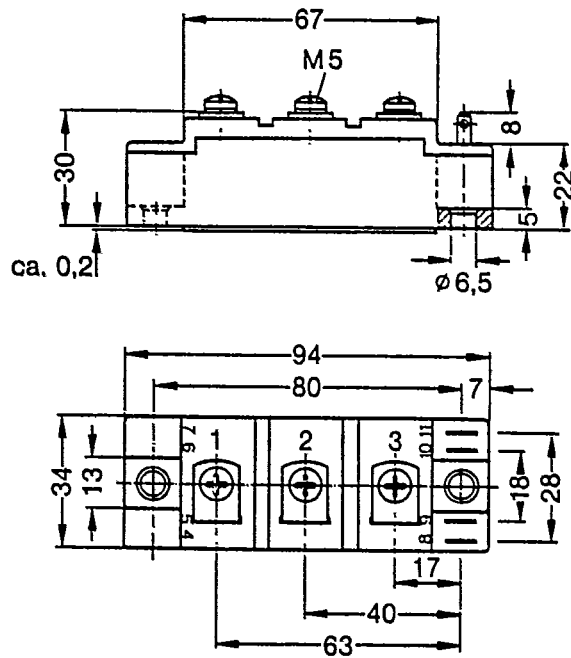


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
C	4.5	6.0	.178	.236
D	19.7	21.4	.776	.843
F	5.3	6.1	.209	.240
G	15.3	15.9	.602	.625
K	1.1	1.3	.043	.051
L	2.51	2.56	.099	.101
M	19.9	20.2	.783	.795
N	2.2	2.6	.087	.102
Q	0.4	0.8	.016	.031
R	2.9	3.3	.114	.129

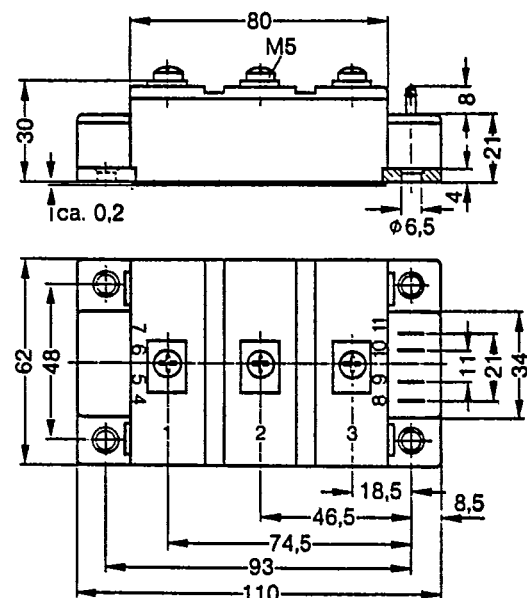
TO-238
Dimensions in Millimeters



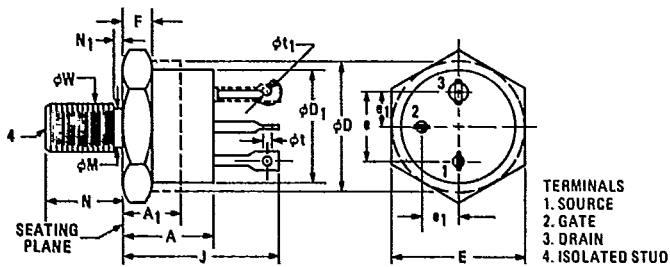
Y-4
Dimensions in Millimeters



Y-3
Dimensions in Millimeters



CONFORMS TO JEDEC OUTLINE TO-210AC (TO-61) Dimensions in Millimeters (Inches)



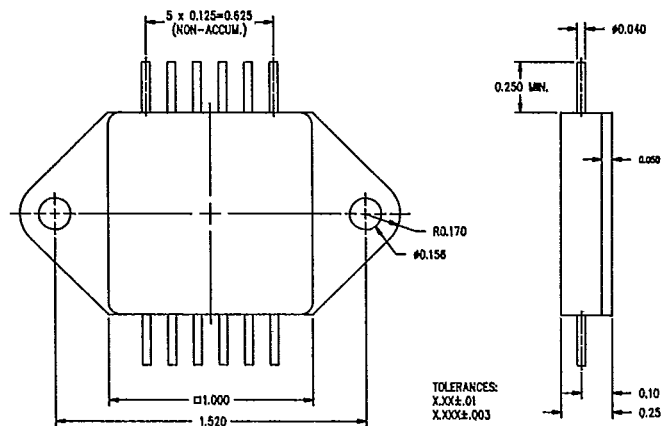
Symbol	Inches		Millimeters		Notes
	Min.	Max.	Min.	Max.	
A	0.325	0.450	8.26	11.68	
A ₁		0.270		6.86	2
ϕD	0.610	0.687	15.49	17.45	2
ϕD_1	0.570	0.610	14.48	15.49	
E	0.667	0.687	16.94	17.45	
e	0.340	0.415	8.64	10.54	5
$\phi 1$	0.170	0.213	4.32	5.41	5
F	0.090	0.150	2.29	3.81	1

Symbol	Inches		Millimeters		Notes
	Min.	Max.	Min.	Max.	
J	0.640	0.875	16.26	22.23	
ϕM	0.220	0.249	5.59	6.32	
N	0.422	0.455	10.72	11.56	
N_1		0.090		2.29	
ϕt	0.055	0.072	1.19	1.83	
ϕt_1	0.045	0.077	1.17	1.96	4
ϕW	0.2225	0.2268	5.661	5.761	3

NOTES

1. DIMENSION DOES NOT INCLUDE SEALING FLANGES.
2. PACKAGE CONTOUR OPTIONAL WITHIN DIMENSIONS SPECIFIED.
3. PITCH DIAMETER - THREAD 1/4 28 UNF 2A (COATED).
REFERENCE IS SCREW THREAD STANDARDS FOR FEDERAL SERVICES - HANDBOOK H 281.
4. THIS TERMINAL CAN BE FLATTENED AND PIERCED OR HOOK TYPE.
5. POSITION OF LEADS IN RELATION TO THE HEXAGON IS NOT CONTROLLED.

QUADPAC



Z-Pac

