SGS-THOMSON MICROELECTRONICS
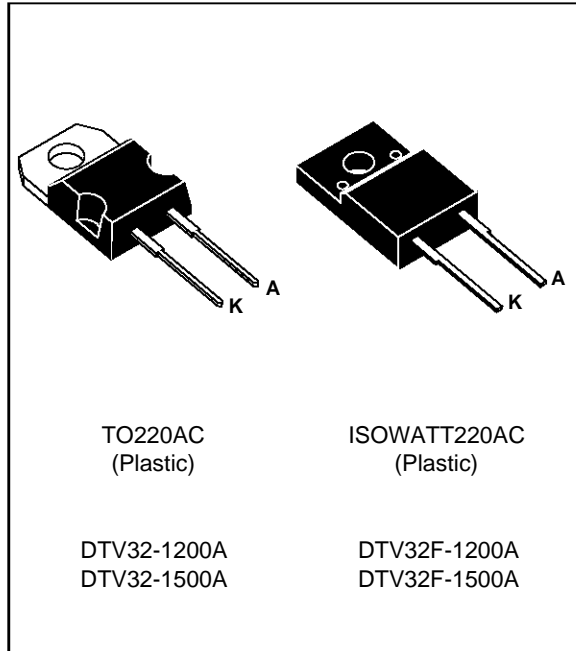
DTV32(F)-1200A
DTV32(F)-1500A

(CRT HORIZONTAL DEFLECTION) HIGH VOLTAGE DAMPER DIODE

FEATURES

- HIGH BREAKDOWN VOLTAGE CAPABILITY
- LOW AND MEDIUM FREQUENCY OPERATION
- SPECIFIED TURN ON SWITCHING CHARAC-TERISTICS
- TYPICAL TOTAL LOSSES : 2 W (I_{Fpeak} = 6 A, F = 32 kHz)
- SUITABLE WITH **BUH** TRANSISTORS SERIES
- INSULATED VERSION (ISOWATT220AC) : Insulating voltage = 2000 V DC Capacitance = 12 pF

DESCRIPTION

High voltage diode especially designed for horizontal deflection stage in standard and high resolution displays for TV's and monitors.
This device is packaged in TO220AC or ISO-WATT220AC.

TO220AC (Plastic)   ISOWATT220AC (Plastic)

DTV32-1200A   DTV32F-1200A
DTV32-1500A   DTV32F-1500A

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter			Value	Unit
$I_{F(RMS)}$	RMS forward current			15	A
$I_{F(AV)}$	Average forward current δ = 0.5	TO220AC	Tc=130°C	6	A
		ISOWATT220AC	Tc=115°C	6	
I_{FSM}	Surge non repetitive forward current		tp=10ms sinusoidal	100	A
Tstg Tj	Storage and junction temperature range			- 40 to + 150 - 40 to + 150	°C °C

Symbol	Parameter	DTV32(F)-		Unit
		1200A	**1500A**	
V_{RRM}	Repetitive peak reverse voltage	1200	1500	V
V_{RWM}	Reverse working voltage	1000	1350	V

DTV32(F)-1200A / DTV32(F)-1500A

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-c)	Junction to case	TO220AC	2	°C/W
		ISOWATT220AC	4	

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R *	$T_j = 25°C$	$V_R = V_{RWM}$			100	μA
	$T_j = 100°C$				1	mA
V_F **	$T_j = 25°C$	$I_F = 6$ A			1.3	V
	$T_j = 100°C$	$I_F = 6$ A			1.2	

Pulse test : * tp = 5 ms, duty cycle < 2 %
             ** tp = 380 μs, duty cycle < 2 %

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
trr (1)	$T_j = 25°C$	$I_F = 1$ A $dI_F/dt = -15$ A/μs $V_R = 30$ V		450	600	ns
trr (2)	$T_j = 25°C$	$I_F = 1$ A $dI_F/dt = -50$ A/μs $V_R = 30$ V		300		ns
trr	$T_j = 25°C$	$I_F = 100$mA $I_R = 100$mA		250		ns

TURN ON SWITCHING CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{FR} (2)	$T_j = 100°C$	$I_F = 6$ A $dI_F/dt = 80$ A/μs		0.5		μs
V_{FP} (2)		$V_{FR} = 2$ V		30		V

(1)Test following Jedec Standard
(2) Test representative of the application

To evaluate the conduction losses use the following equations :
$V_F = 1.0 + 0.025$ I_F $P = 1.0$ x $I_{F(AV)} + 0.025$ x $I_F{}^2{}_{(RMS)}$

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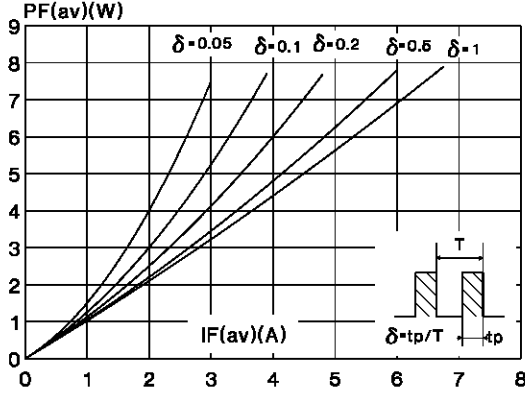**Fig.1 :** Average forward power dissipation versus average forward current.
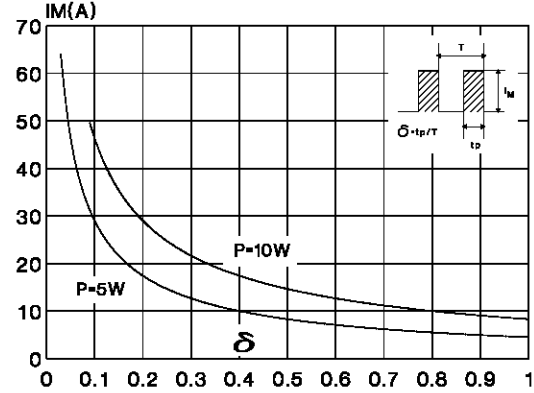
Fig.2 : Peak current versus form factor.

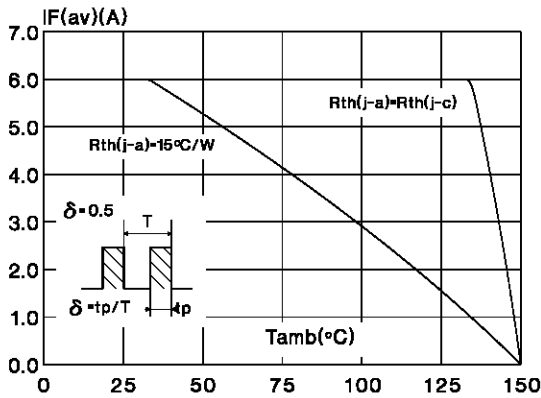**Fig.3 :** Average current versus ambient temperature. (duty cycle : 0.5) (TO220AC)

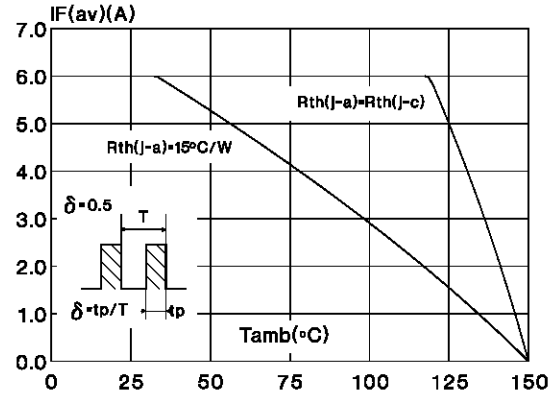**Fig.4 :** Average current versus ambient temperature. (duty cycle : 0.5) (ISOWATT220AC)

Fig.5 : Non repetitive surge peak forward current versus overload duration.
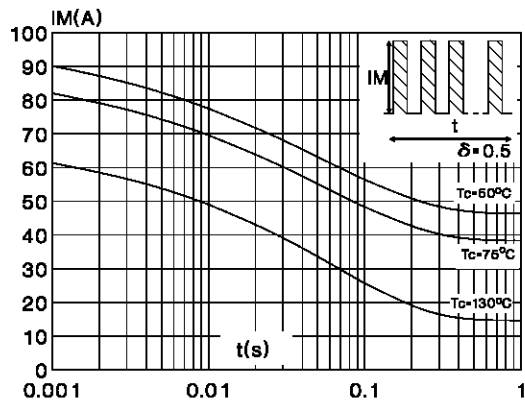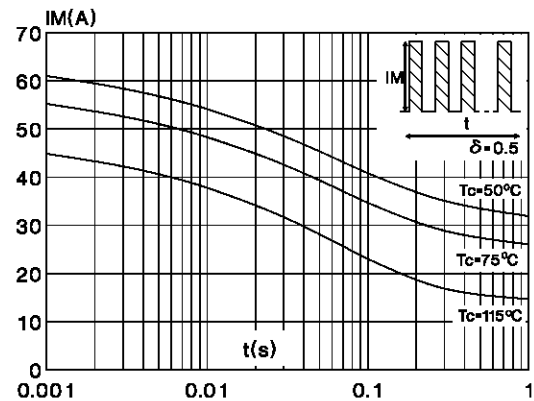(Maximum values) (TO220AC)

Fig.6 : Non repetitive surge peak forward current versus overload duration.
(Maximum values) (ISOWATT220AC)

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DTV32(F)-1200A / DTV32(F)-1500A

Fig.7 : Relative variation of thermal transient impedance junction to case versus pulse duration. (TO220AC)

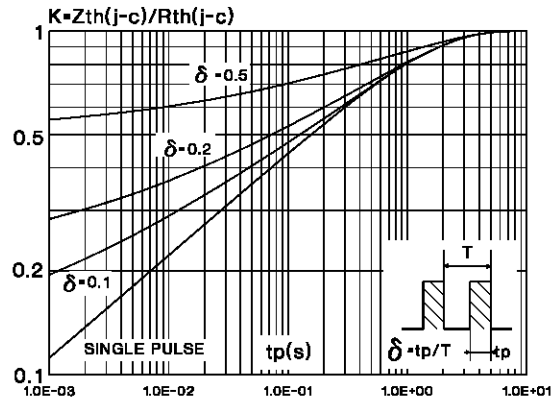**Fig.8 :** Relative variation of thermal transient impedance junction to case versus pulse duration. (ISOWATT220AC)

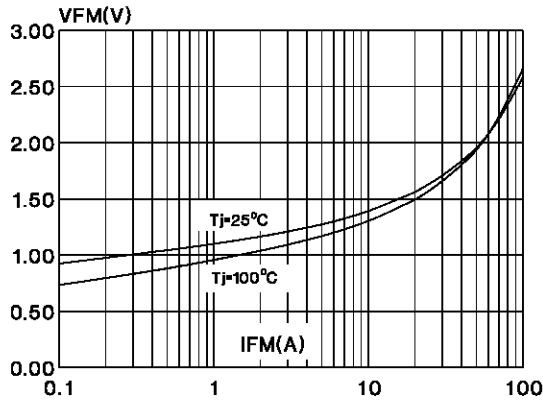**Fig.9 :** Forward voltage drop versus forward current. (Maximum values)

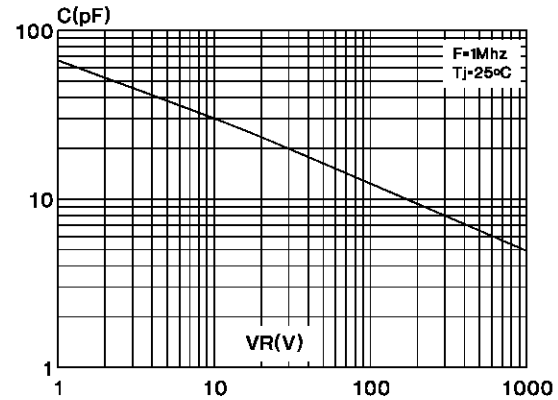**Fig.10 :** Junction capacitance versus reverse voltage applied. (Typical values)
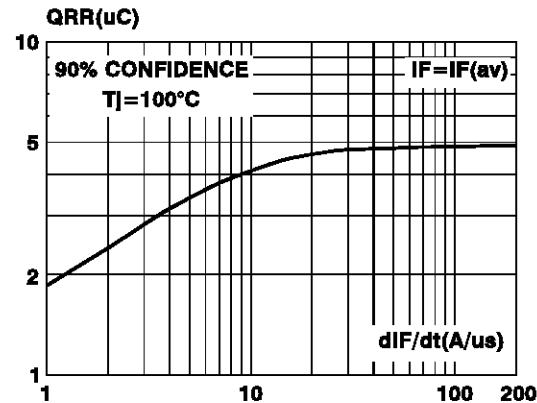

Fig.11 : Recovery charge versus dI$_F$/dt.
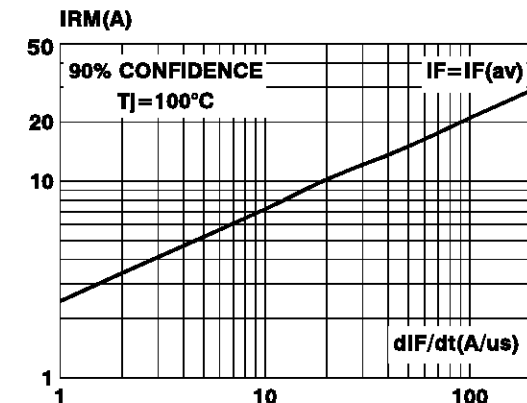

Fig.12 : Peak reverse current versus dI$_F$/dt.

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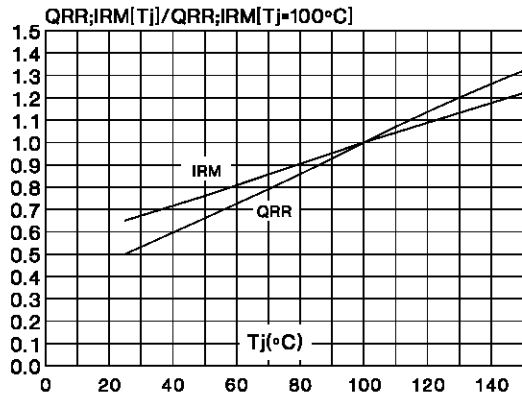**MICROELECTRONICS**

Fig.13 **:** Dynamic parameters versus junction temperature.

Fig.14 : Peak forward voltage versus dI_F/dt.

Fig.15 : Recovery time versus dI_F/dt.
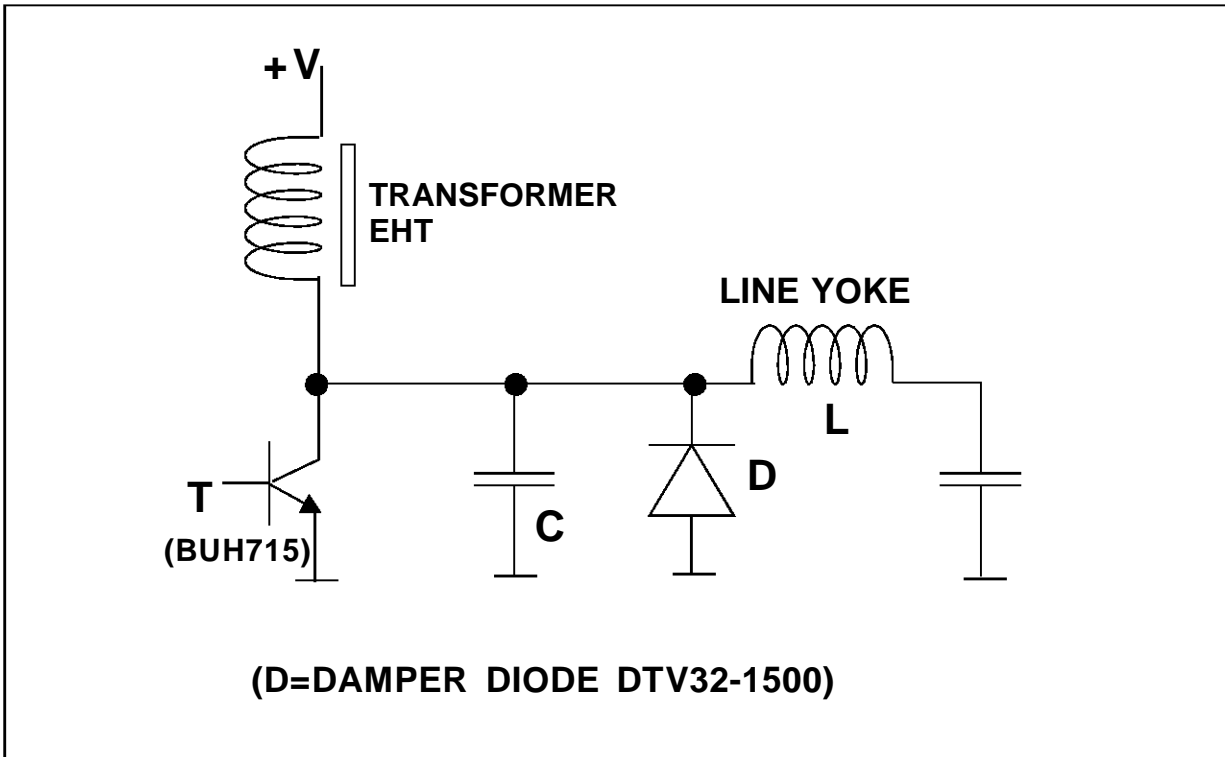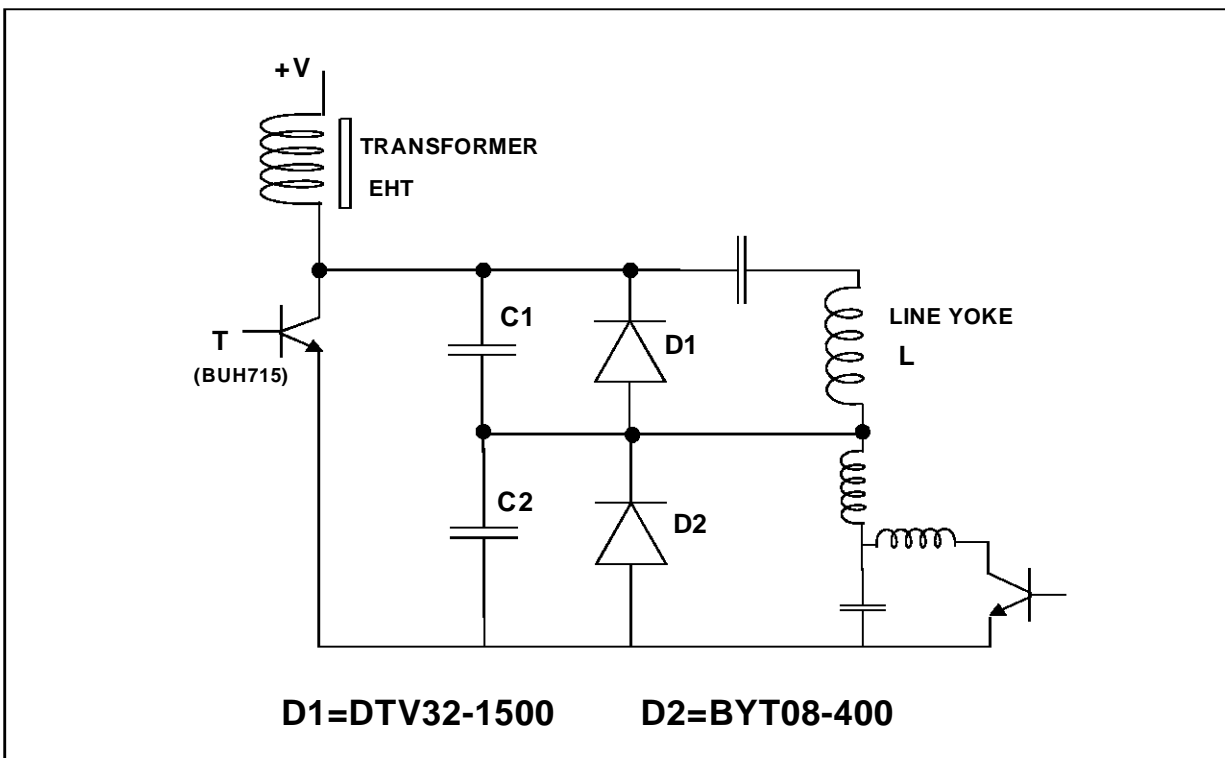
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BASIC HORIZONTAL DEFLECTION CIRCUIT

(D=DAMPER DIODE DTV32-1500)

BASIC E-W DIODE MODULATOR CIRCUIT

D1=DTV32-1500   D2=BYT08-400

PACKAGE MECHANICAL DATA

TO220AC   Plastic

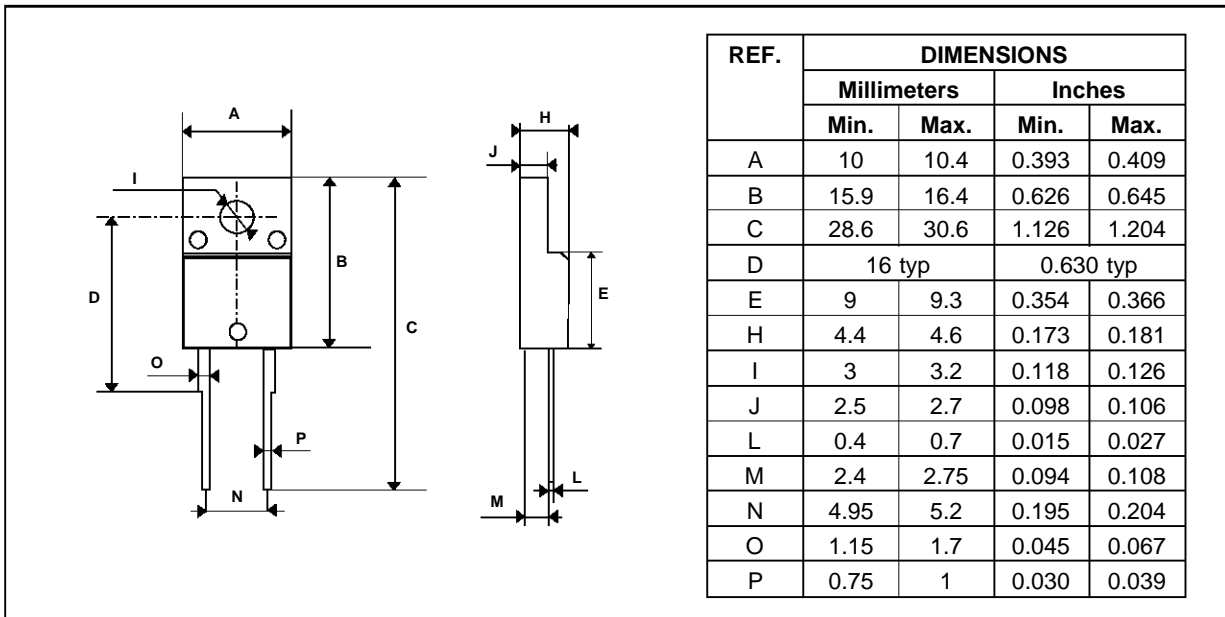| REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	9.66	10.66	0.380	0.419
B	15.2	15.9	0.598	0.626
C	13	14	0.511	0.551
D	6.2	6.6	0.244	0.260
E	16.4 typ.		0.645 typ.	
F	3.5	4.2	0.137	0.165
G	2.65	2.95	0.104	0.116
H	4.4	4.6	0.173	0.181
I	3.75	3.85	0.147	0.151
J	1.23	1.32	0.048	0.051
K	1.27 typ.		0.050 typ.	
L	0.49	0.70	0.019	0.027
M	2.4	2.72	0.094	0.107
N	4.95	5.15	0.194	0.203
O	1.14	1.70	0.044	0.067
P	0.61	0.88	0.024	0.034

Cooling method : C
Marking : Type number
Weight : 1.9 g
Recommended torque value : 0.55m.N
Maximum torque value : 0.70m.N

PACKAGE MECHANICAL DATA

ISOWATT220AC   Plastic

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	10	10.4	0.393	0.409
B	15.9	16.4	0.626	0.645
C	28.6	30.6	1.126	1.204
D	16 typ		0.630 typ	
E	9	9.3	0.354	0.366
H	4.4	4.6	0.173	0.181
I	3	3.2	0.118	0.126
J	2.5	2.7	0.098	0.106
L	0.4	0.7	0.015	0.027
M	2.4	2.75	0.094	0.108
N	4.95	5.2	0.195	0.204
O	1.15	1.7	0.045	0.067
P	0.75	1	0.030	0.039

Cooling method : C
Marking : Type number
Weight : 2 g
Recommended torque value : 0.55m.N
Maximum torque value : 0.70m.N

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