



STPS8H100D/F/G/G-1

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

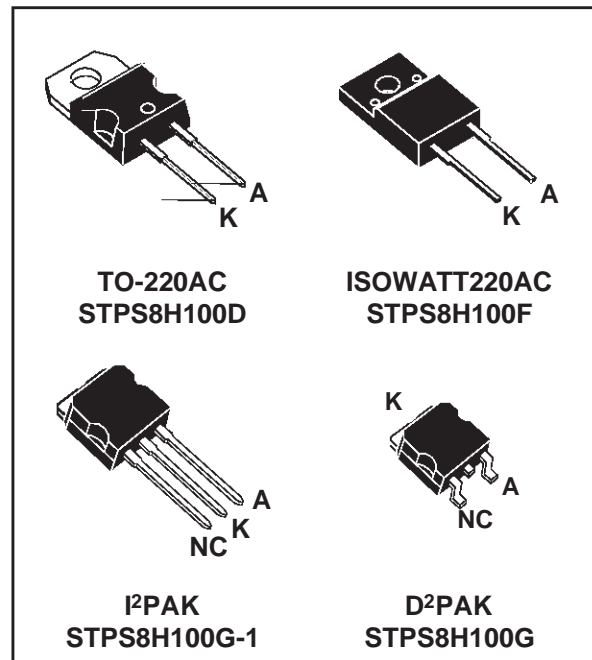
$I_{F(AV)}$	8 A
V_{RRM}	100 V
$T_j(\text{max})$	175 °C
$V_F(\text{max})$	0.58 V

FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- HIGH JUNCTION TEMPERATURE CAPABILITY
- LOW LEAKAGE CURRENT
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- AVALANCHE RATED

DESCRIPTION

Schottky barrier rectifier designed for high frequency compact Switched Mode Power Supplies such as adaptators and on board DC/DC converters.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit	
V_{RRM}	Repetitive peak reverse voltage		100	V	
$I_{F(RMS)}$	RMS forward current		30	A	
$I_{F(AV)}$	Average forward current $\delta = 0.5$	TO-220AC / I²PAK / D²PAK	$T_c = 165^\circ\text{C}$	8	A
		ISOWATT220AC	$T_c = 150^\circ\text{C}$		
I_{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal		250	A
I_{RRM}	Repetitive peak reverse current	tp = 2 μs F = 1kHz square		1	A
I_{RSM}	Non repetitive peak reverse current	tp = 100 μs square		3	A
E_{as}	Non repetitive avalanche energy	$T_j = 25^\circ\text{C}$ L = 60 mH $I_{as} = 2$ A		24	mJ
I_{ar}	Repetitive avalanche current	$V_a = 1.5 \times V_R$ typ Current decaying linearly to 0 in 1 μs Frequency limited by T_j max.		2	A
T_{stg}	Storage temperature range		- 65 to + 175	°C	
T_j	Maximum operating junction temperature		175	°C	
dV/dt	Critical rate of rise of rise voltage		10000	V/ μs	

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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	TO-220AC / I ² PAK / D ² PAK	1.6	°C/W
$R_{th(j-c)}$	Junction to case	ISOWATT220AC	4	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			4.5	μA
		$T_j = 125^\circ\text{C}$			2	6	mA
V_F^{**}	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 8\text{ A}$			0.71	V
		$T_j = 25^\circ\text{C}$	$I_F = 10\text{ A}$			0.77	
		$T_j = 25^\circ\text{C}$	$I_F = 16\text{ A}$			0.81	
		$T_j = 125^\circ\text{C}$	$I_F = 8\text{ A}$		0.56	0.58	
		$T_j = 125^\circ\text{C}$	$I_F = 10\text{ A}$		0.59	0.64	
		$T_j = 125^\circ\text{C}$	$I_F = 16\text{ A}$		0.65	0.68	

Pulse test : * $t_p = 5\text{ ms}$, $\delta < 2\%$
 ** $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :

$$P = 0.48 \times I_{F(AV)} + 0.0125 \times I_{F(RMS)}^2$$

Fig. 1: Average forward power dissipation versus average forward current. (TO-220AC / ISOWATT220AC / I²PAK / D²PAK)

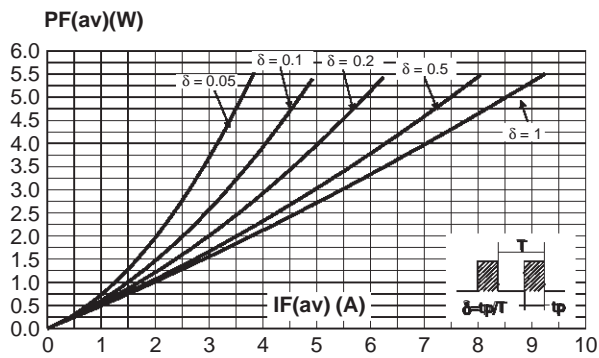


Fig. 2-1: Average forward current versus ambient temperature ($\delta=0.5$) (TO-220AC / I²PAK / D²PAK).

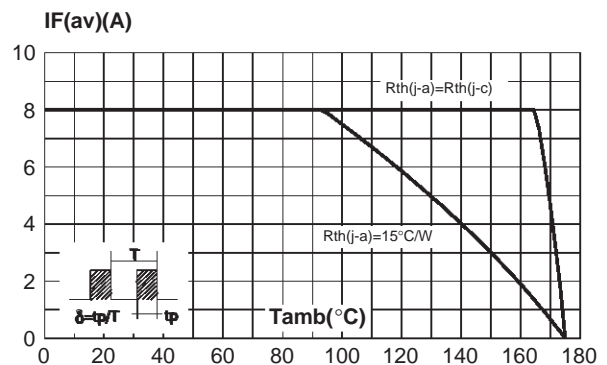


Fig. 2-2: Average forward current versus ambient temperature ($\delta=0.5$) (ISOWATT220AC).

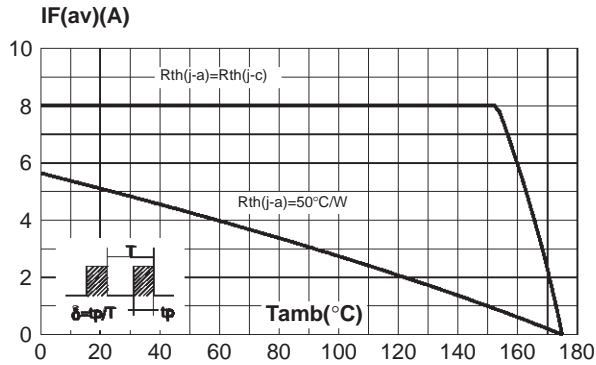


Fig. 3-1: Non repetitive surge peak forward current versus overload duration (maximum values) (TO-220AC / I²PAK / D²PAK).

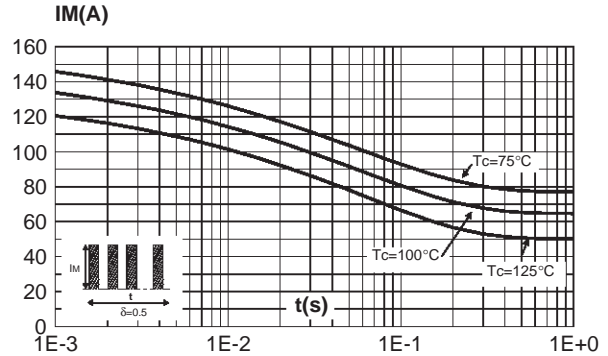


Fig. 3-2: Non repetitive surge peak forward current versus overload duration (maximum values) (ISOWATT220AC).

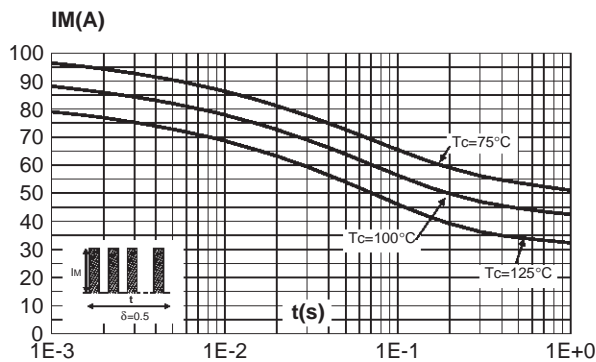


Fig. 4-1: Relative variation of thermal impedance junction to case versus pulse duration (TO-220AC / I²PAK / D²PAK).

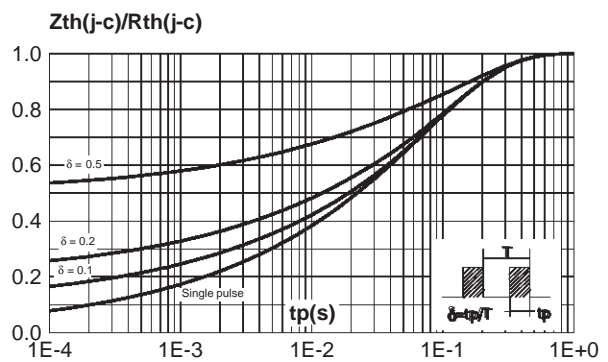


Fig. 4-2: Relative variation of thermal impedance junction to case versus pulse duration (ISOWATT220AC).

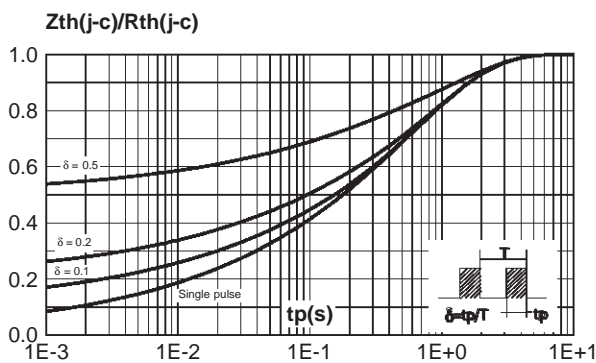


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values).

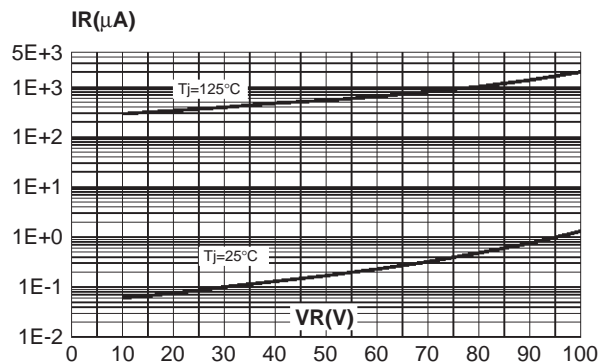


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

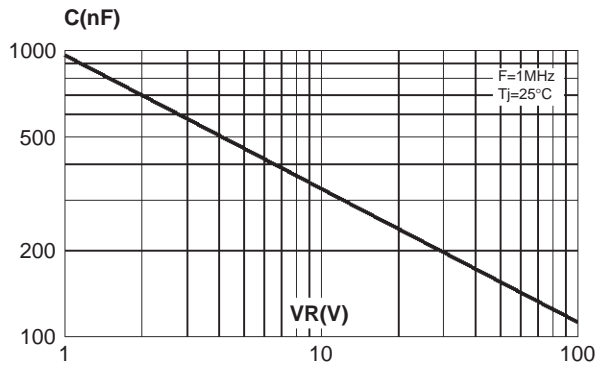


Fig. 7: Forward voltage drop versus forward current (maximum values).

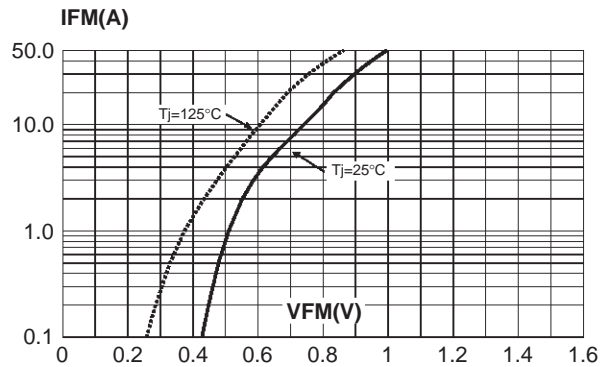
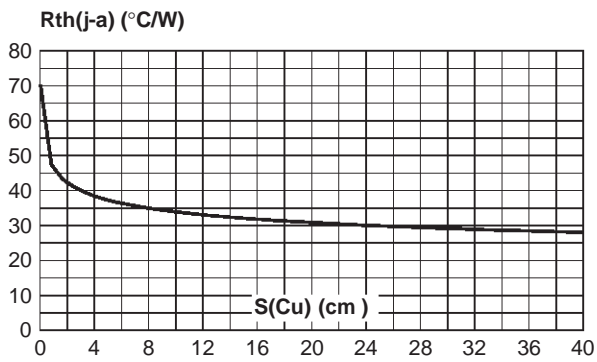
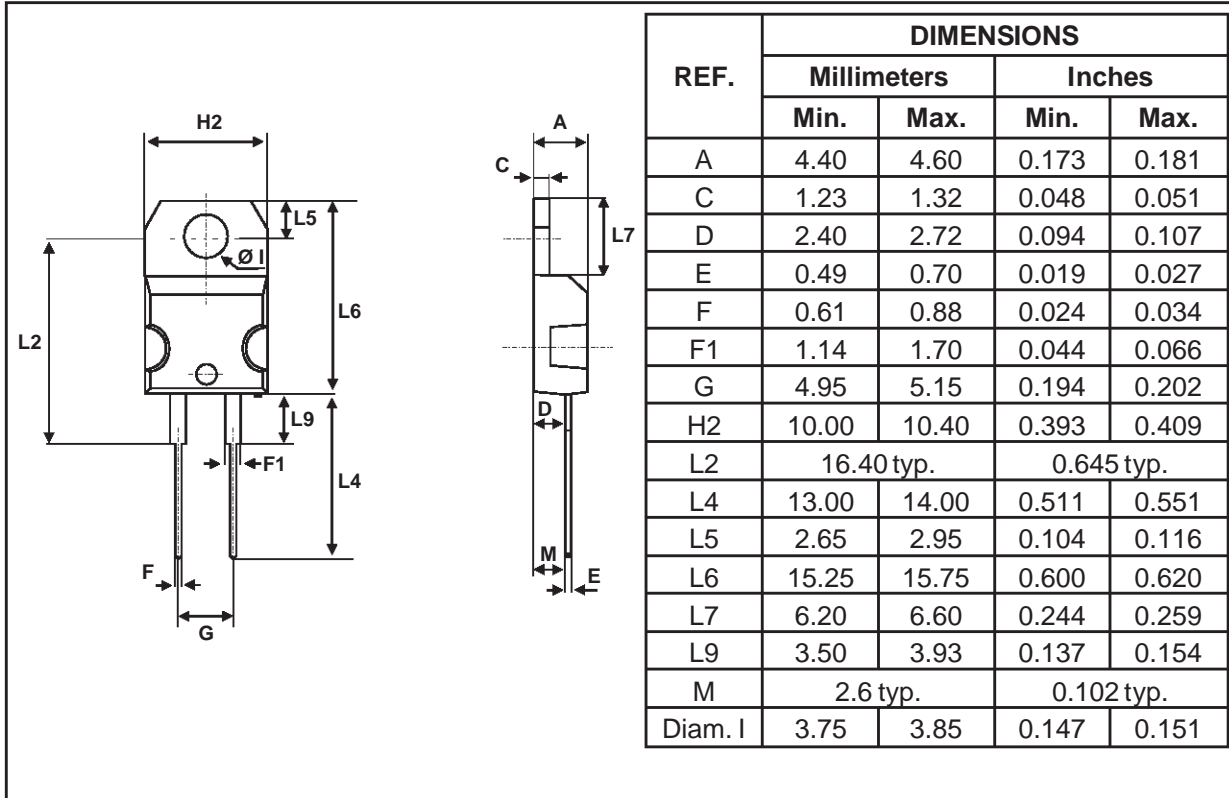


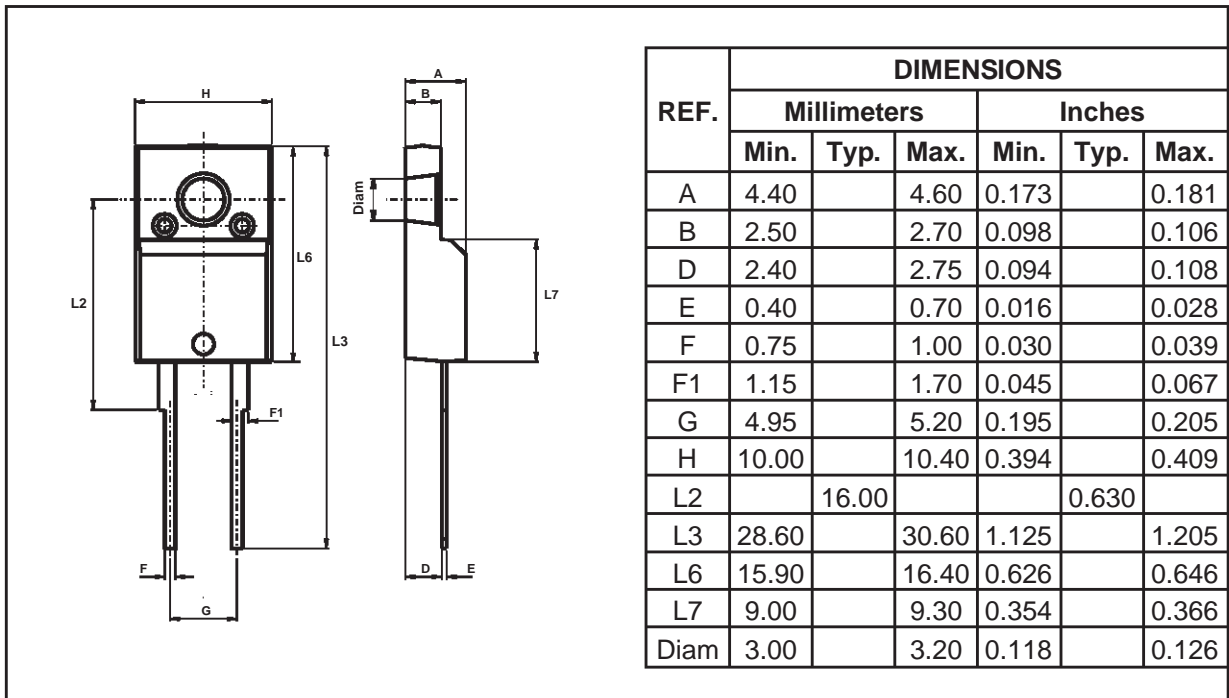
Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35μm)(D²PAK).



PACKAGE MECHANICAL DATA
TO-220AC

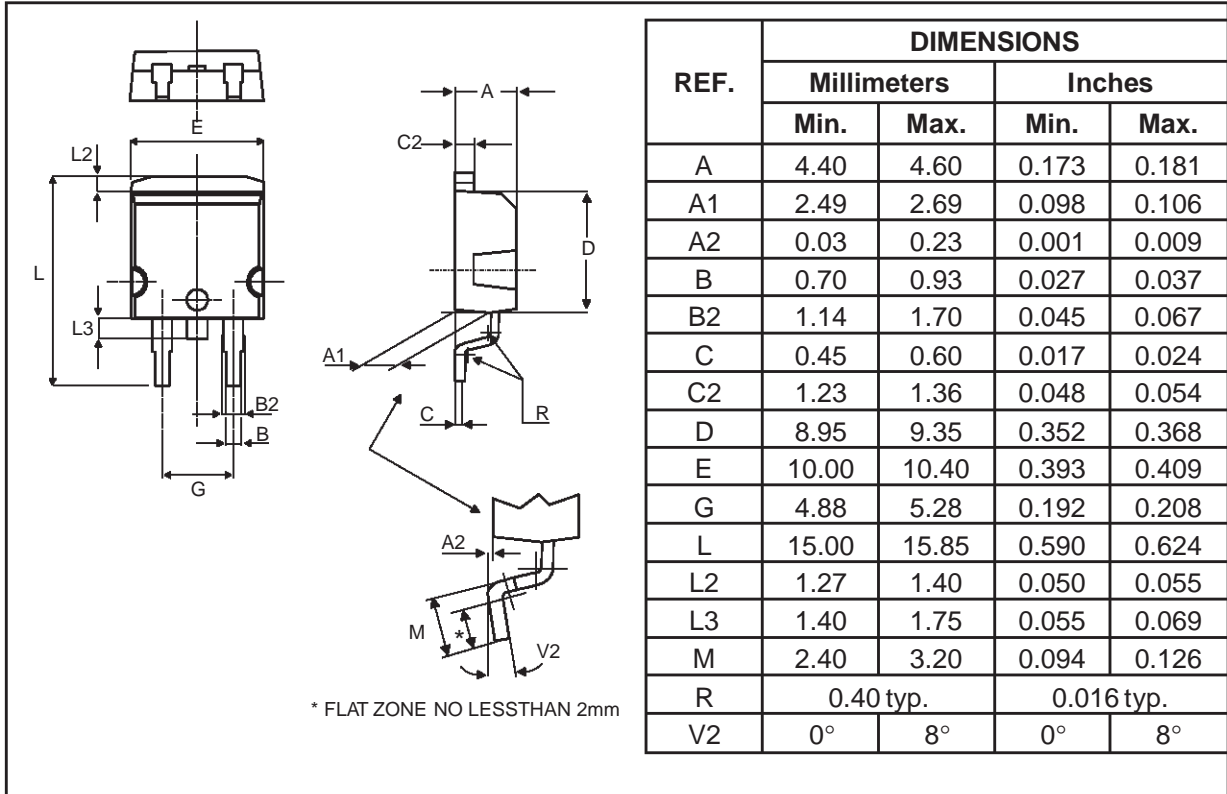


PACKAGE MECHANICAL DATA
ISOWATT220AC

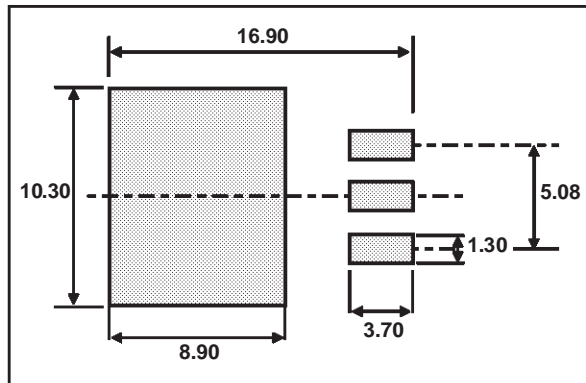


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PACKAGE MECHANICAL DATA
D²PAK



FOOTPRINT (in millimeters)D²PAK



PACKAGE MECHANICAL DATA
I²PAK

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
A1	2.49	2.69	0.098	0.106
b	0.70	0.93	0.028	0.037
b1	1.14	1.17	0.044	0.046
b2	1.14	1.17	0.044	0.046
c	0.45	0.60	0.018	0.024
c2	1.23	1.36	0.048	0.054
D	8.95	9.35	0.352	0.368
e	2.40	2.70	0.094	0.106
E	10.0	10.4	0.394	0.409
L	13.1	13.6	0.516	0.535
L1	3.48	3.78	0.137	0.149
L2	1.27	1.40	0.050	0.055

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS8H100D	STPS8H100D	TO-220AC	1.86g	50	Tube
STPS8H100F	STPS8H100F	ISOWATT220AC	2.00g	50	Tube
STPS8H100G-1	STPS8H100G	I ² PAK	1.49g	50	Tube
STPS8H100G	STPS8H100G	D ² PAK	1.48g	50	Tube
STPS8H100G-TR	STPS8H100G	D ² PAK	1.48g	500	Tape & reel

■ Epoxy meets UL94,V0

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