



# STPS20150CT/CG/CR/CFP

## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

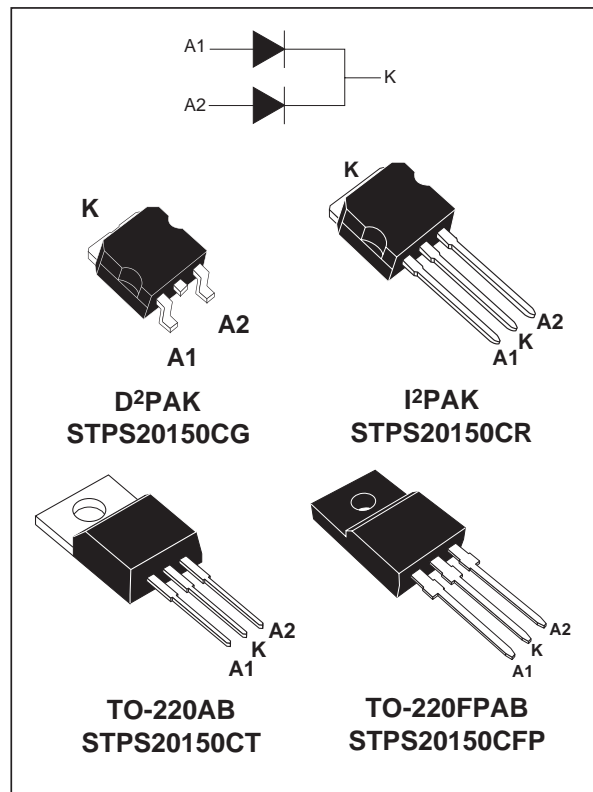
$I_{F(AV)}$	2 x 10 A
$V_{RRM}$	150 V
$T_j$	175°C
$V_F(max)$	0.75 V

### FEATURES AND BENEFITS

- HIGH JUNCTION TEMPERATURE CAPABILITY
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- LOW LEAKAGE CURRENT

### DESCRIPTION

Dual center tap schottky rectifier designed for high frequency Switched Mode Power Supplies.



### ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter				Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage				150	V
$I_{F(RMS)}$	RMS forward current				30	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	TO-220AB D <sup>2</sup> PAK / I <sup>2</sup> PAK	$T_c = 155^\circ\text{C}$	Per diode	10	A
		TO-220FPAB	$T_c = 135^\circ\text{C}$	Per device	20	
$I_{FSM}$	Surge non repetitive forward current		tp = 10 ms sinusoidal		180	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 reverse voltage				10000	V/ $\mu\text{s}$

**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit	
R <sub>th(j-c)</sub>	Junction to case	TO-220AB / D <sup>2</sup> PAK / I <sup>2</sup> PAK	Per diode	2.2	°C/W
		TO-220FPAB		4.5	
		TO-220AB / D <sup>2</sup> PAK / I <sup>2</sup> PAK	Total	1.3	
		TO-220FPAB		3.5	
R <sub>th(c)</sub>		TO-220AB / D <sup>2</sup> PAK / I <sup>2</sup> PAK	Coupling	0.3	
		TO-220FPAB		2.5	

When the diodes 1 and 2 are used simultaneously :  
 $\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$

**STATIC ELECTRICAL CHARACTERISTICS (per diode)**

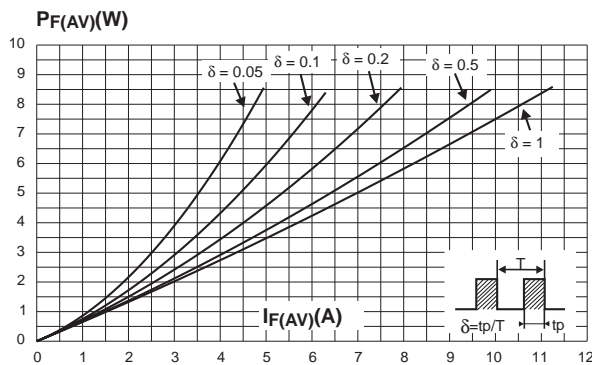
Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub> *	Reverse leakage current	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			5.0	μA
		T <sub>j</sub> = 125°C				5.0	mA
V <sub>F</sub> **	Forward voltage drop	T <sub>j</sub> = 25°C	I <sub>F</sub> = 10 A			0.92	V
		T <sub>j</sub> = 125°C	I <sub>F</sub> = 10 A		0.69	0.75	
		T <sub>j</sub> = 25°C	I <sub>F</sub> = 20 A			1	
		T <sub>j</sub> = 125°C	I <sub>F</sub> = 20 A		0.79	0.86	

Pulse test : \* t<sub>p</sub> = 5 ms, δ < 2%  
 \*\* t<sub>p</sub> = 380 μs, δ < 2%

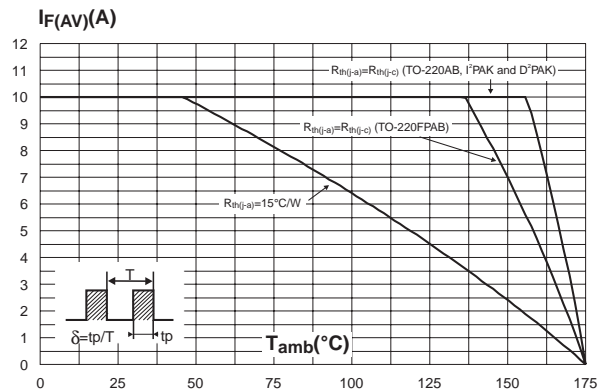
To evaluate the conduction losses use the following equation:

$$P = 0.64 \times I_{F(AV)} + 0.011 I_{F(RMS)}^2$$

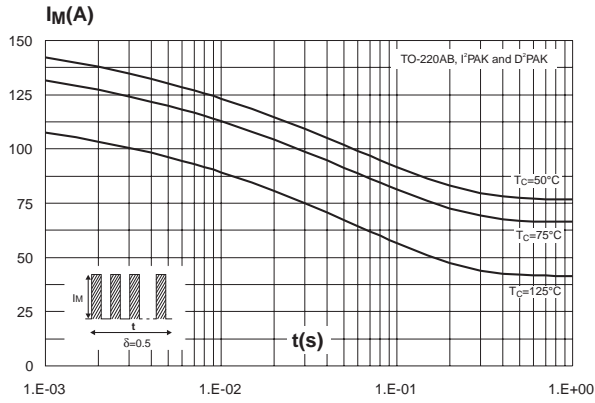
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



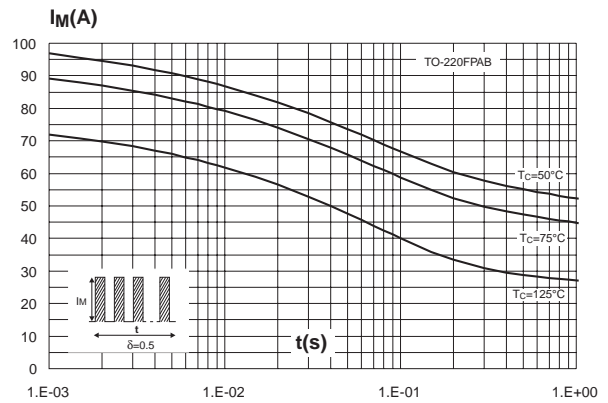
**Fig. 2:** Average forward current versus ambient temperature (δ = 0.5, per diode).



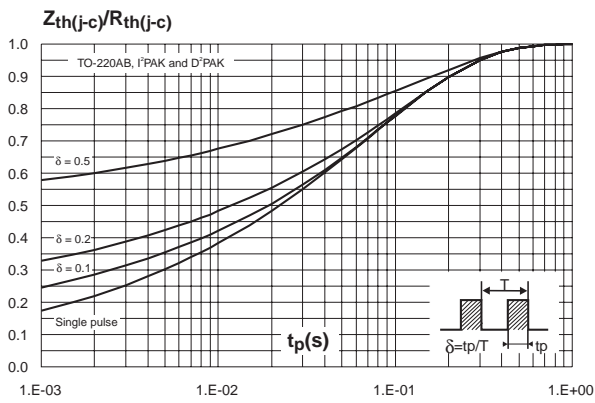
**Fig. 3-1:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode). TO-220AB, I<sup>2</sup>PAK and D<sup>2</sup>PAK



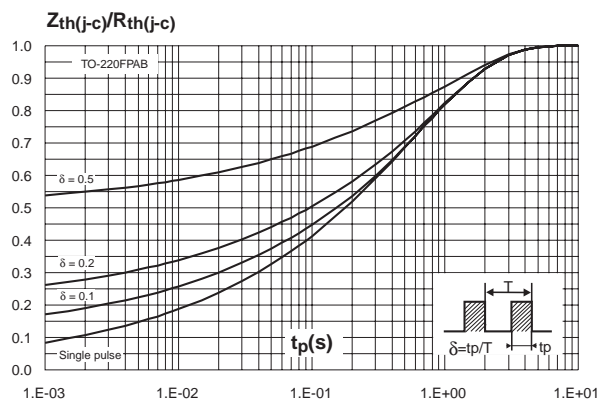
**Fig. 3-2:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode). TO-220FPAB



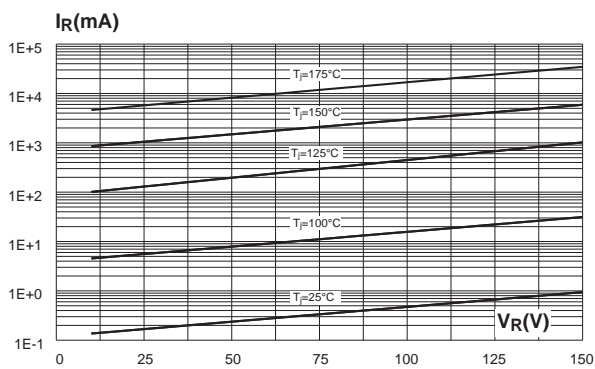
**Fig. 4-1:** Relative variation of thermal impedance junction to case versus pulse duration. TO-220AB, I<sup>2</sup>PAK and D<sup>2</sup>PAK



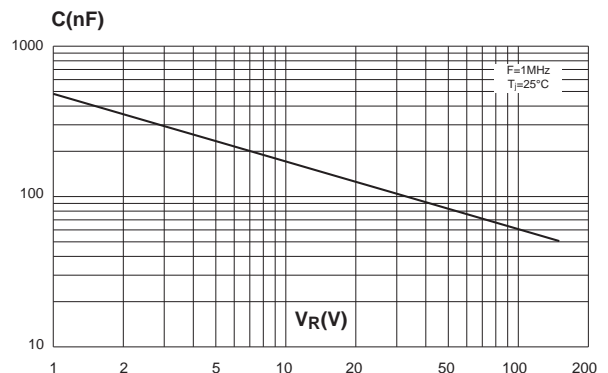
**Fig. 4-2:** Relative variation of thermal impedance junction to case versus pulse duration. TO-220FPAB



**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values, per diode).

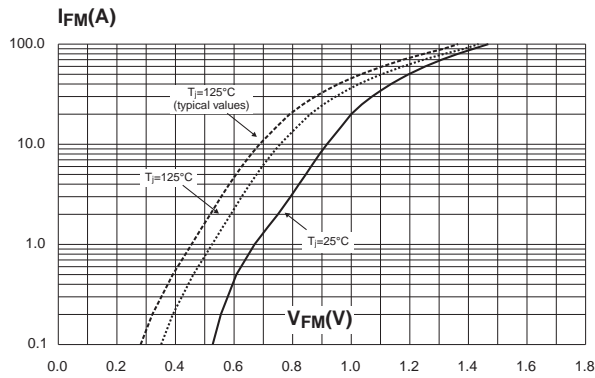


**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values, per diode).

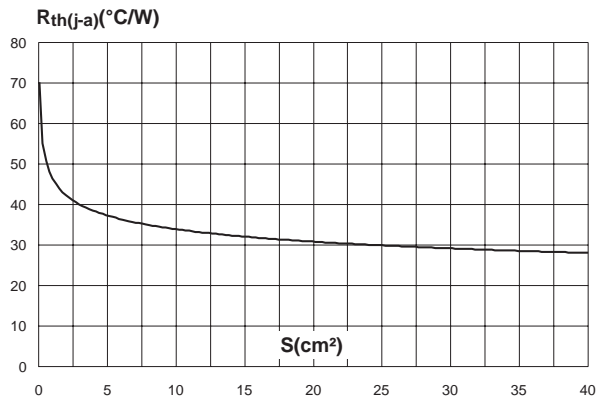


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**Fig. 7:** Forward voltage drop versus forward current (per diode).



**Fig. 8:** Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board, Cu = 35µm) (STPS20150CG only).

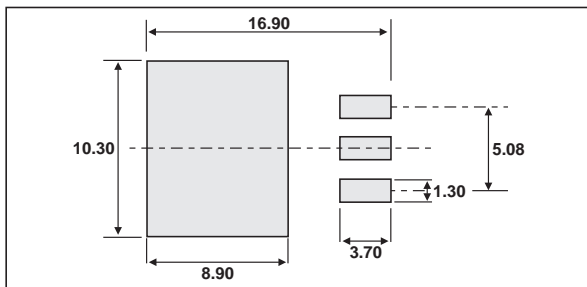


## PACKAGE MECHANICAL DATA D<sup>2</sup>PAK

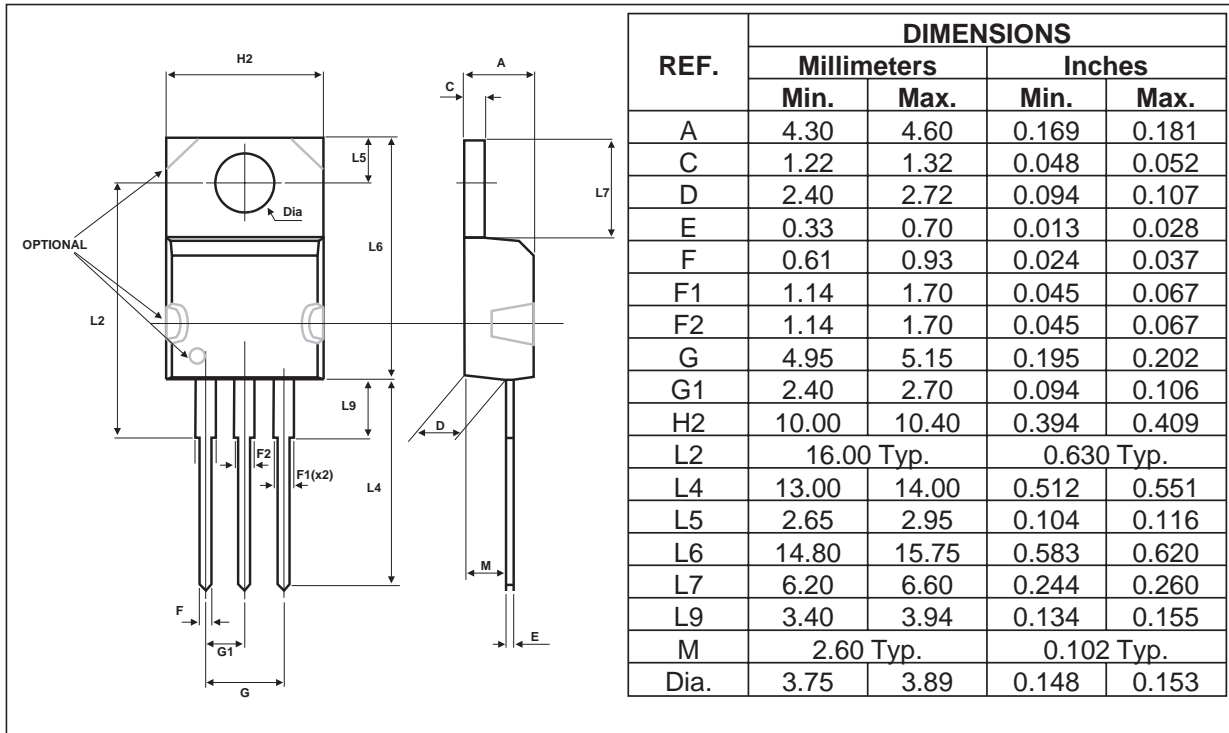
2.0 MIN. FLAT ZONE

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.169		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25	1.40		0.049	0.055	
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	8.95		9.35	0.352		0.368
E	10.00		10.28	0.393		0.405
G	4.88		5.28	0.192		0.208
L	15.00		15.85	0.590		0.624
L2	1.27		1.40	0.050		0.055
L3	1.40		1.75	0.055		0.069
R		0.40			0.016	
V2	0°		8°	0°		8°

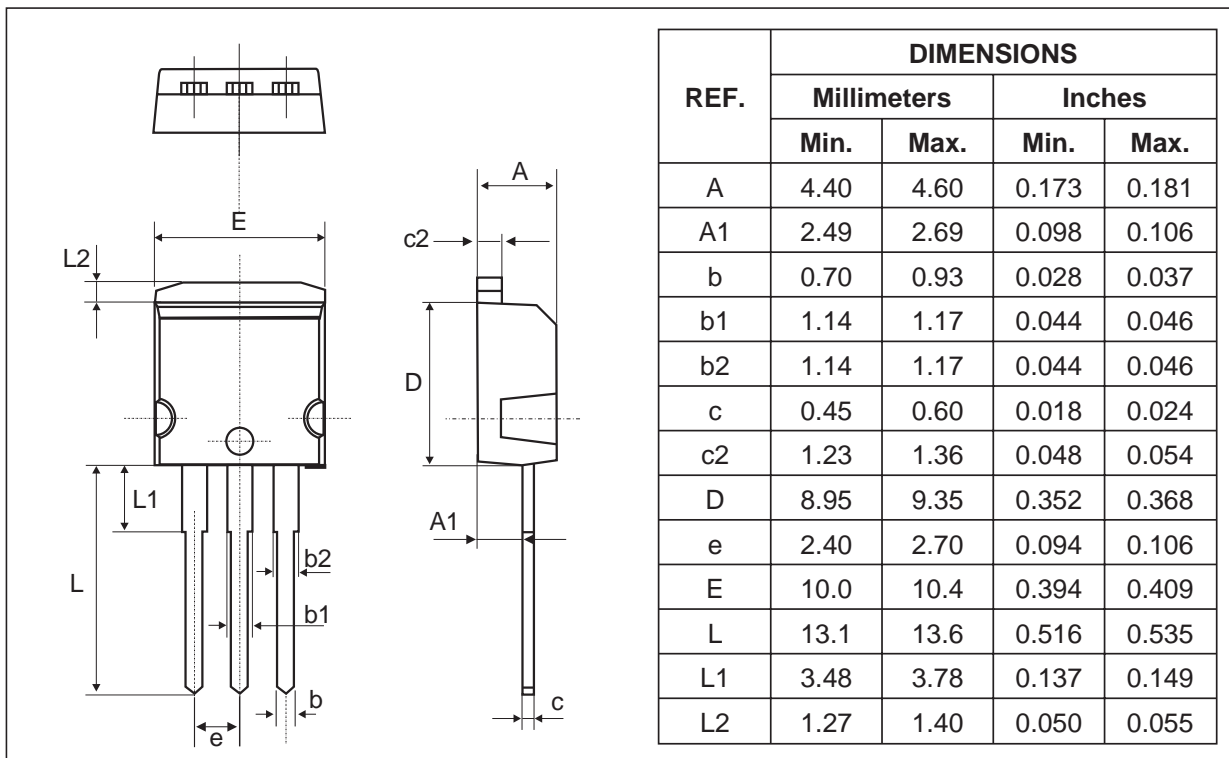
## FOOT PRINT DIMENSIONS (in millimeters)



**PACKAGE MECHANICAL DATA**  
TO-220AB

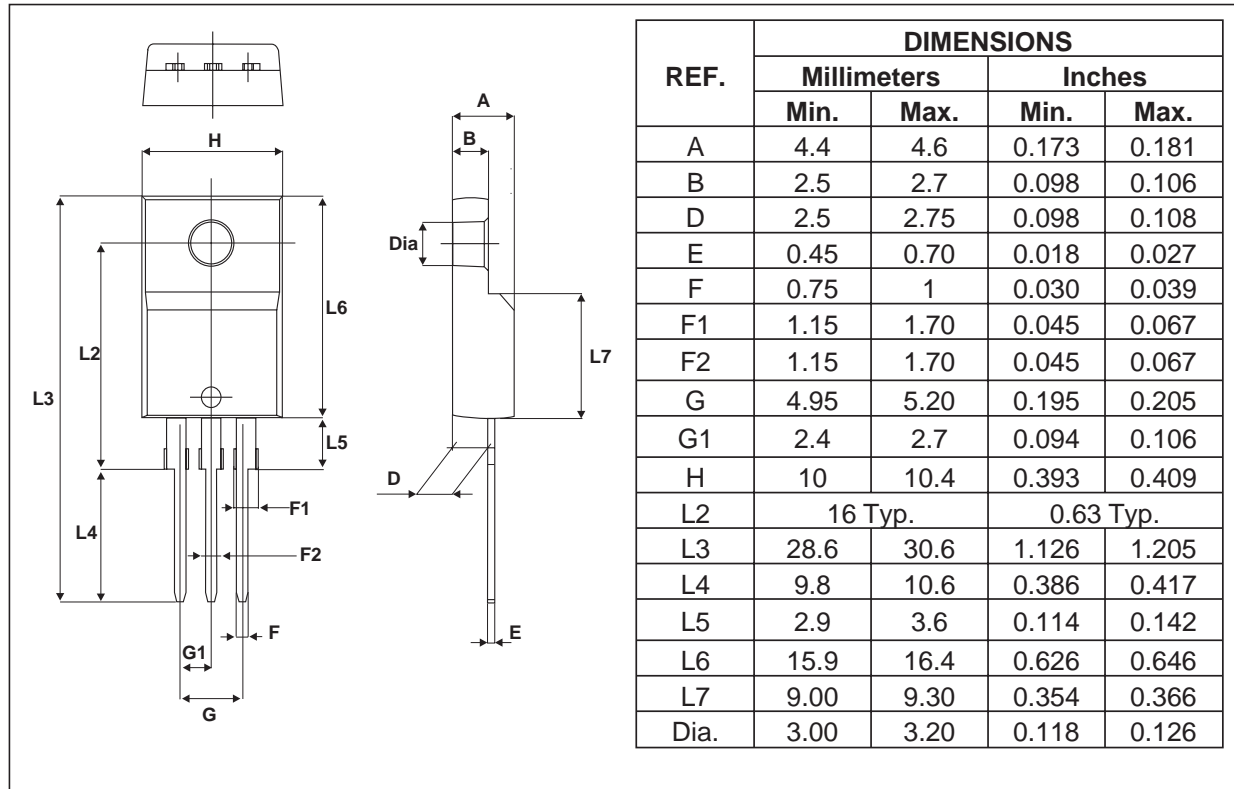


**PACKAGE MECHANICAL DATA**  
I<sup>2</sup>PAK



# STPS20150CT/CG/CR/CFP

## PACKAGE MECHANICAL DATA TO-220FPAB



### OTHER INFORMATION

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS20150CT	STPS20150CT	TO-220AB	2.20 g	50	Tube
STPS20150CG	STPS20150CG	D <sup>2</sup> PAK	1.48 g	50	Tube
STPS20150CG-TR	STPS20150CG	D <sup>2</sup> PAK	1.48 g	1000	Tape & Reel
STPS20150CR	STPS20150CR	I <sup>2</sup> PAK	1.49 g	50	Tube
STPS20150CFP	STPS20150CFP	TO-220FPAB	2.0 g	50	Tube

- Epoxy meets UL94,V0

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