



STPS30L60CW/CT/CG/CR

POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

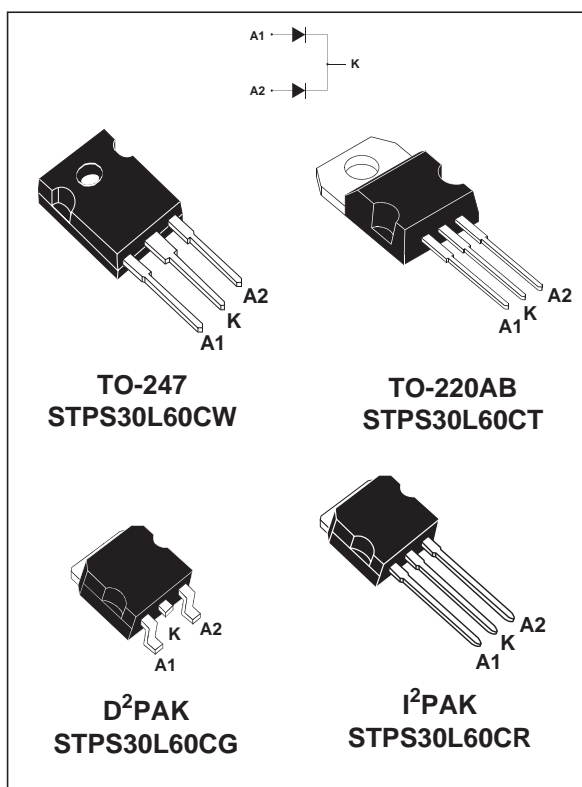
$I_{F(AV)}$	2 x 15 A
V_{RRM}	60 V
$T_j(max)$	150°C
$V_F(max)$	0.56 V

FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE
- AVALANCHE CAPABILITY SPECIFIED

DESCRIPTION

Dual center tap Schottky rectifiers suited for Switched Mode Power Supplies and high frequency DC to DC converters. Packaged in TO-220, D²PAK, I²PAK and TO-247 this device is intended for use in high frequency inverters.



ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			60	V
$I_{F(RMS)}$	RMS forward current			30	A
$I_{F(AV)}$	Average forward current	$T_c = 130^\circ\text{C}$ $\delta = 0.5$	Per diode Per device	15 30	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10\text{ ms}$	Sinusoidal	230	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2\text{ }\mu\text{s}$	square F=1kHz	2	A
P_{ARM}	Repetitive peak avalanche power	$t_p = 1\text{ }\mu\text{s}$	$T_j = 25^\circ\text{C}$	7800	W
T_{stg}	Storage temperature range			- 65 to + 175	°C
T_j	Maximum operating junction temperature *			150	°C
dV/dt	Critical rate of rise of reverse voltage			10000	V/ μs

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink

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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode	1.5	$^{\circ}\text{C/W}$
		Total	0.8	
$R_{th(c)}$		Coupling	0.1	$^{\circ}\text{C/W}$

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_R^*	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			480	μA
		$T_j = 125^{\circ}\text{C}$			77	130	mA
V_F^*	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 15\text{ A}$			0.6	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 15\text{ A}$		0.5	0.56	
		$T_j = 25^{\circ}\text{C}$	$I_F = 30\text{ A}$			0.75	
		$T_j = 125^{\circ}\text{C}$	$I_F = 30\text{ A}$		0.65	0.7	

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

To evaluate the maximum conduction losses use the following equation :
 $P = 0.42 \times I_{F(AV)} + 0.009 I_F^2(\text{RMS})$

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

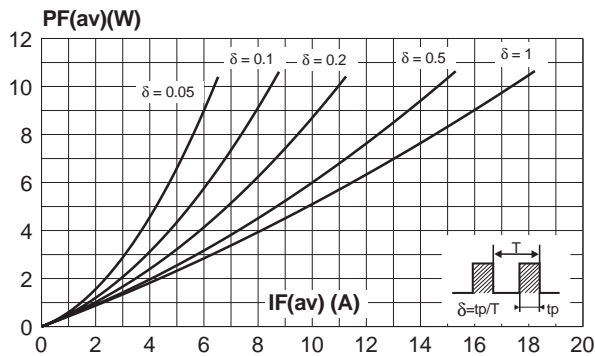


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$, per diode).

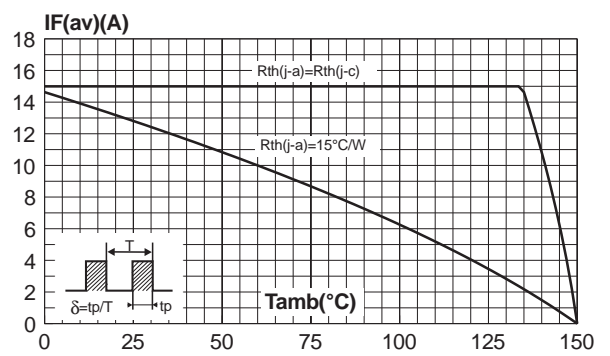


Fig. 3: Normalized avalanche power derating versus pulse duration.

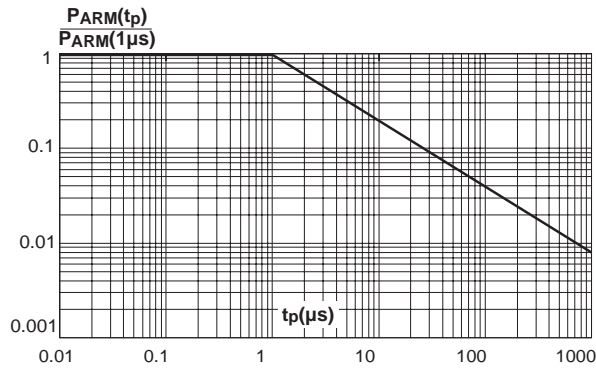


Fig. 4: Normalized avalanche power derating versus junction temperature.

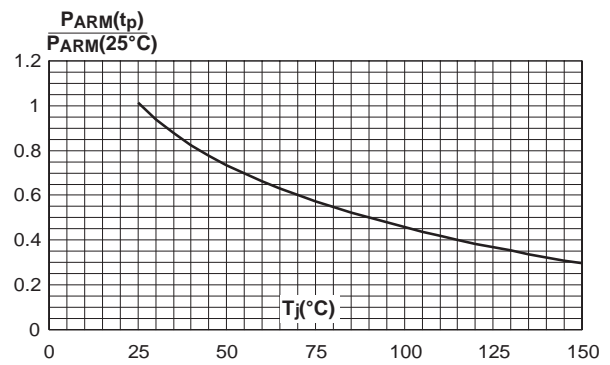


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

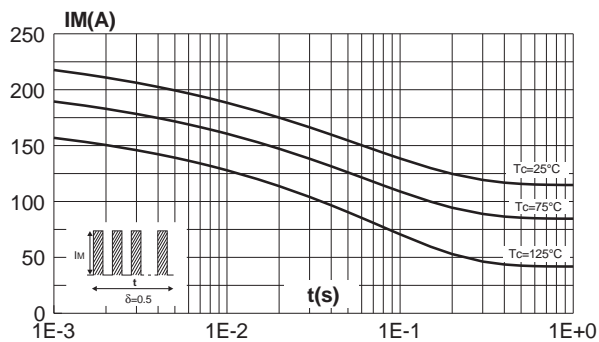


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

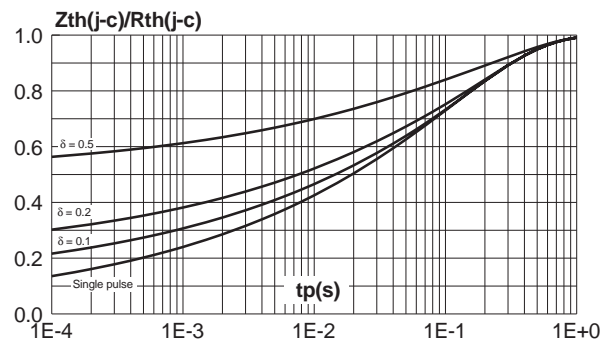


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode).

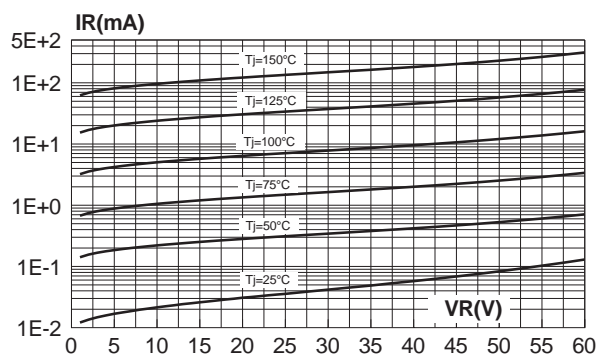
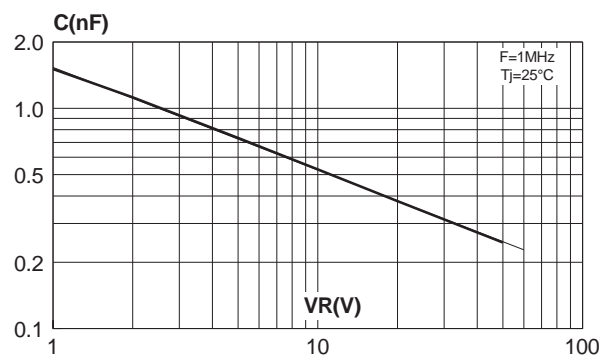


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).



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Fig. 9: Forward voltage drop versus forward current (maximum values, per diode).

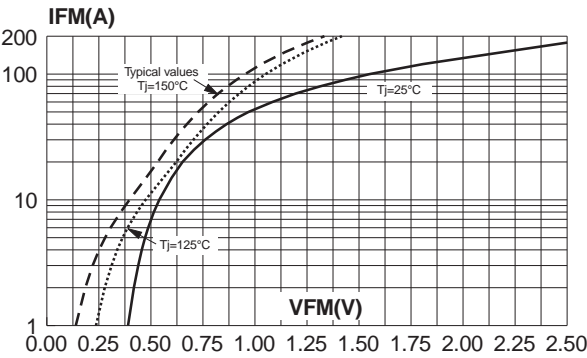
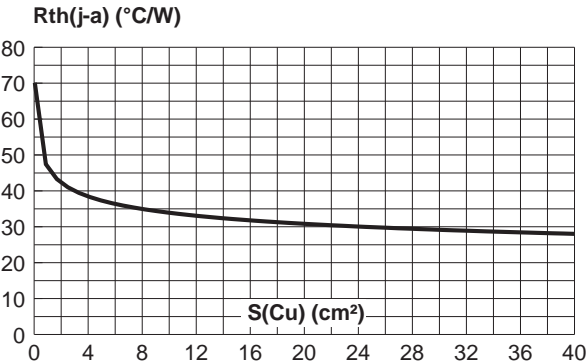
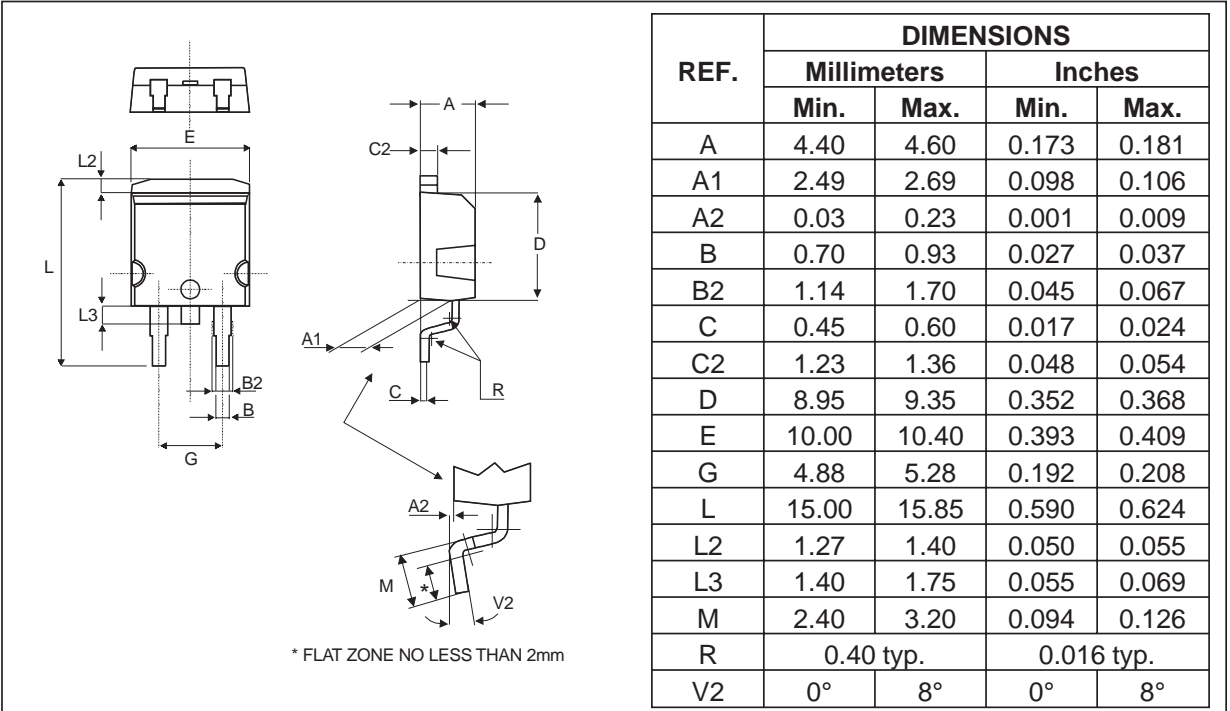


Fig. 10: Thermal resistance junction to ambient versus copper surface under tab for D²PAK (Epoxy printed circuit board FR4, copper thickness: 35µm)

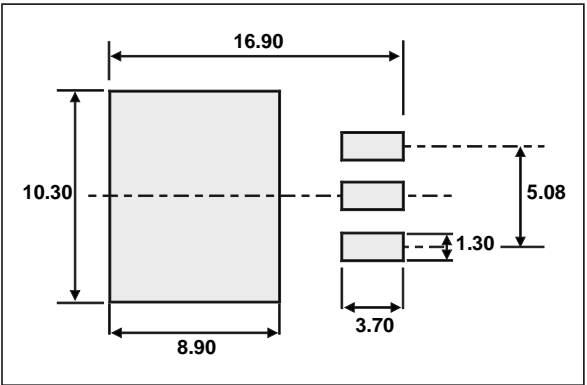


PACKAGE MECHANICAL DATA

D²PAK

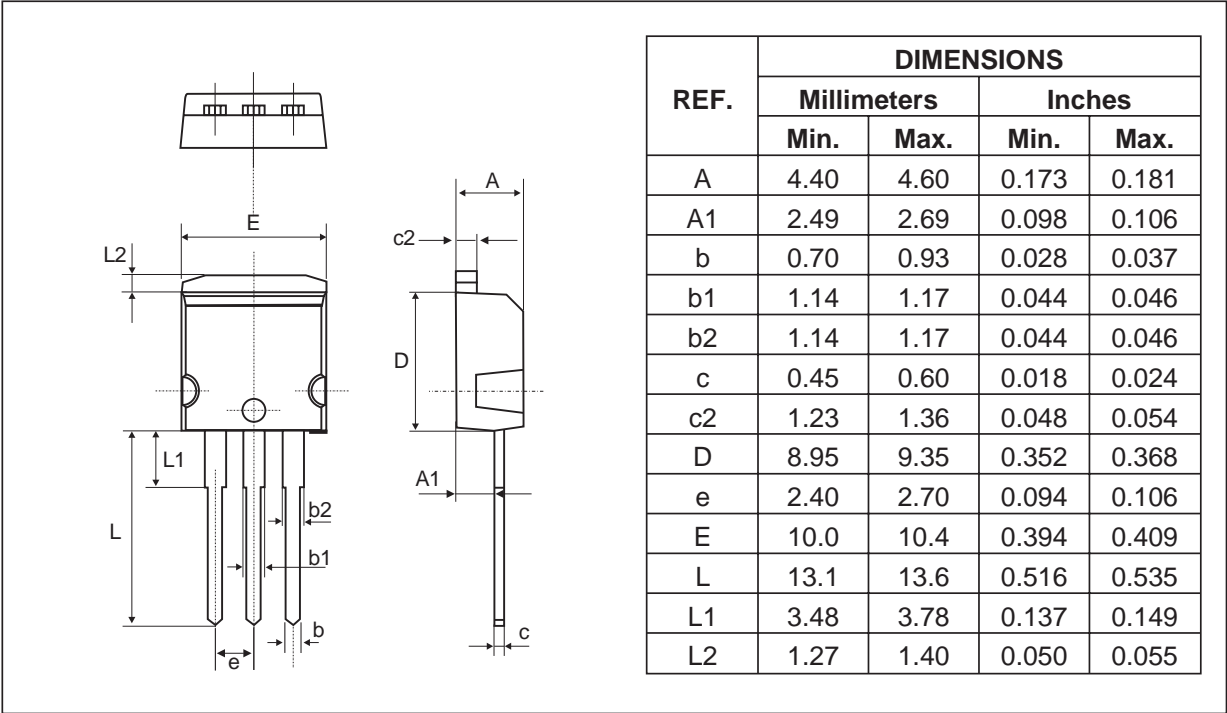


FOOTPRINT



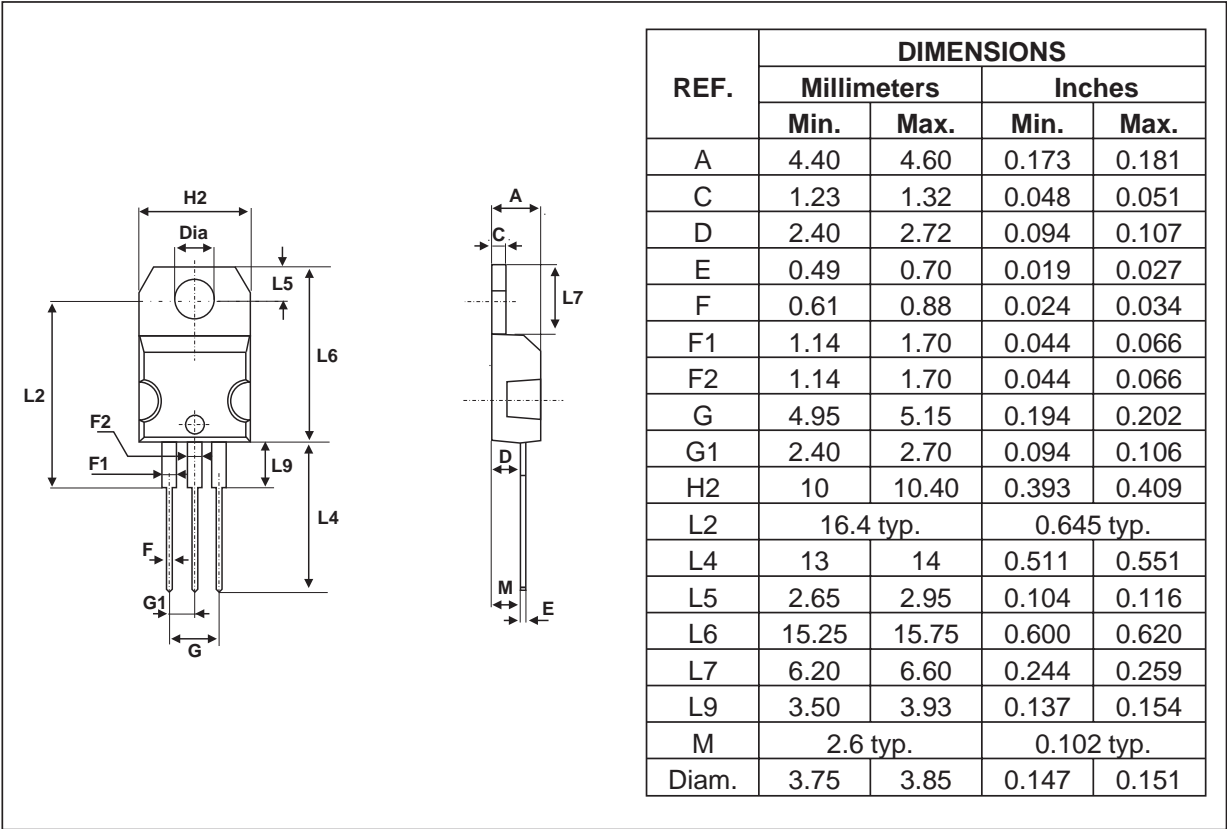
PACKAGE MECHANICAL DATA

I²PAK



PACKAGE MECHANICAL DATA

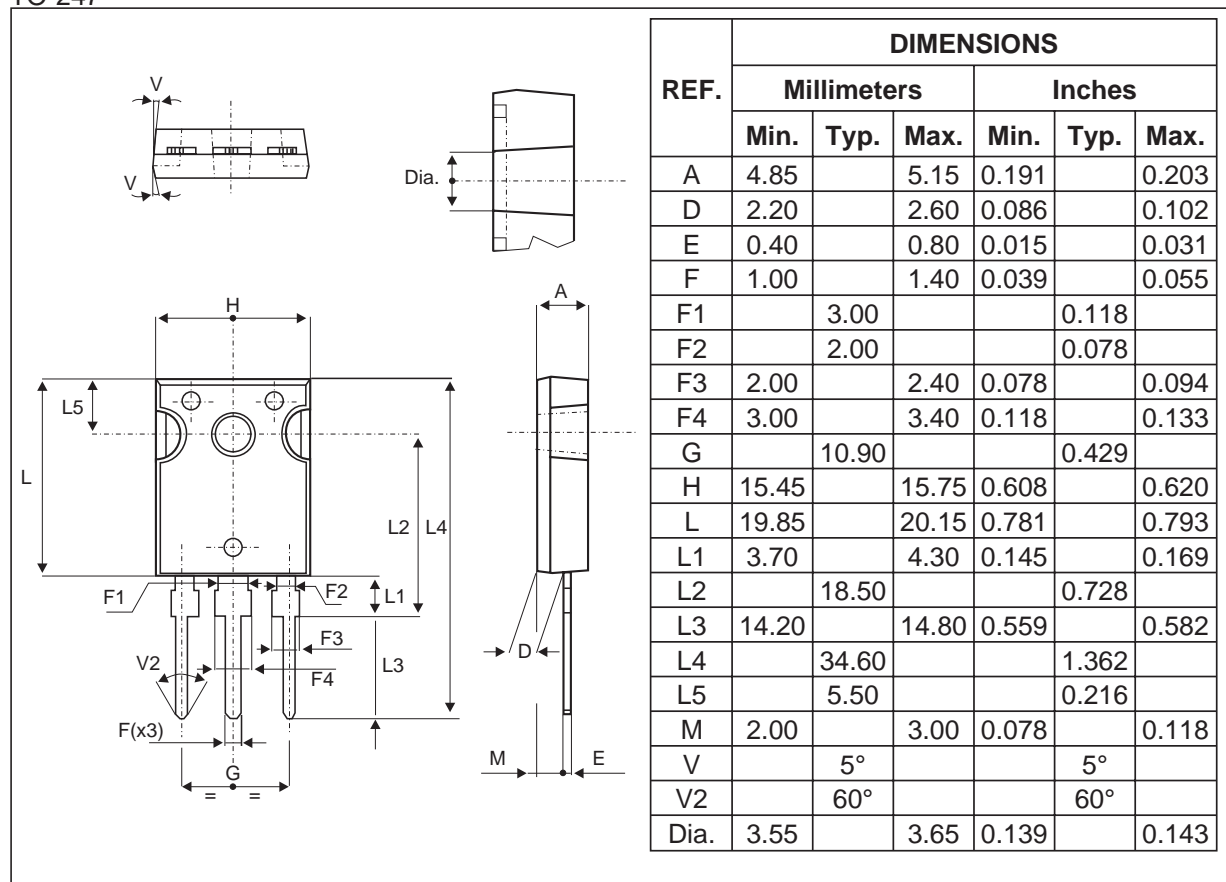
TO-220AB



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PACKAGE MECHANICAL DATA

TO-247



- COOLING METHOD : C
- RECOMMENDED TORQUE VALUE : 0.8M.N
- MAXIMUM TORQUE VALUE : 1.0M.N

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS30L60CW	STPS30L60CW	TO-247	4.4g	50	Tube
STPS30L60CT	STPS30L60CT	TO-220AB	2.3g	50	Tube
STPS30L60CG	STPS30L60CG	D ² PAK	1.5g	50	Tube
STPS30L60CR	STPS30L60CR	I ² PAK	1.49 g	50	Tube

- EPOXY MEETS UL94,V0

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