



# STZ150NF55T

## N-CHANNEL TEMPERATURE SENSING 55V - P<sup>2</sup>PAK SAFeFET™ MOSFET

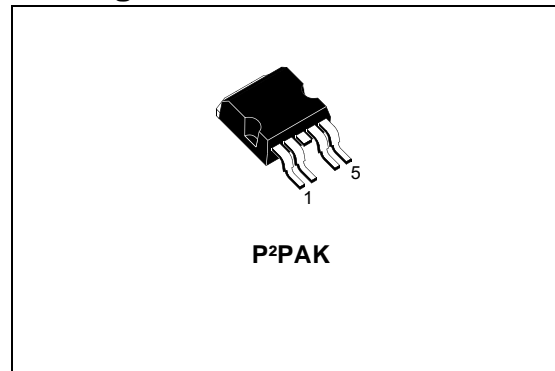
DATA BRIEF

### General features

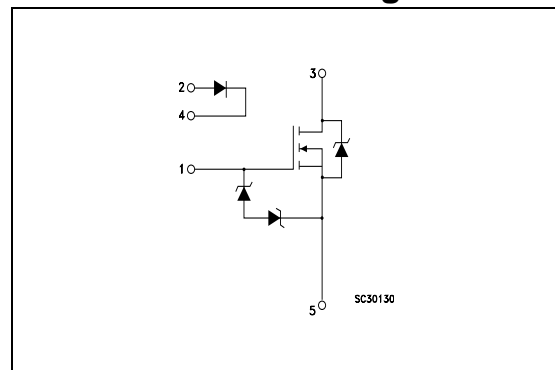
Type	V <sub>DSS</sub>	R <sub>DS(on)</sub>	I <sub>D</sub>
STZ150NF55T	55 V	<9 mΩ	40 A(1)

- INTEGRATED ESD PROTECTION
- INTEGRATED TEMPERATURE SENSING
- STANDARD VGS(th) LEVEL
- 175°C JUNCTION TEMPERATURE

### Package



### Internal schematic diagram



### Applications

- HIGH CURRENT SWITCHING

### Order codes

Sales Type	Marking	Package	Packaging
STZ150NF55T	Z150NF55T	P <sup>2</sup> PAK	TAPE & REEL

# 1 Absolute maximum ratings

**Table 1. Absolute maximum ratings**

Symbol	Parameter	Value	Unit
$V_{DS}$	Drain-Source Voltage ( $V_{GS} = 0$ )	55	V
$V_{GS}$	Gate-Source Voltage	$\pm 18$	V
$I_D$ <i>Note 1</i>	Drain Current (continuous) at $T_C = 25^\circ\text{C}$	40	A
$I_D$ <i>Note 1</i>	Drain Current (continuous) at $T_C = 100^\circ\text{C}$	40	A
$I_{DM}$	Drain Current (pulsed)	160	A
$P_{TOT}$	Total Dissipation at $T_C = 25^\circ\text{C}$	250	W
	Derating Factor	1.67	W/ $^\circ\text{C}$
Vesd(G-S)	G-S ESD (HBM C=100pF, R=1.5k $\Omega$ )	>4	kV
$E_{AS}$	Single Pulse Avalanche Energy	TBD	mJ
$T_j$ $T_{stg}$	Operating Junction Temperature Storage Temperature	-55 to 175	$^\circ\text{C}$

## 2 Electrical characteristics

( $T_{CASE} = 25\text{ °C}$  unless otherwise specified)

**Table 2. On/Off**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$I_D = 250\mu A, V_{GS} = 0$	55			V
$I_{DSS}$	Zero Gate Voltage Drain Current ( $V_{GS} = 0$ )	$V_{DS} = \text{Max Rating}$ ,			10	$\mu A$
$I_{GSS}$	Gate Body Leakage Current ( $V_{DS} = 0$ )	$V_{GS} = \pm 15V, V_{DS} = 0$			10	$\mu A$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2		4	V
$R_{DS(on)}$	Static Drain-Source On Resistance	$V_{GS} = 10V, I_D = 20A$			9	$m\Omega$
$V_F$	Temperature Sense diode forward voltage	$I_F = 250\mu A$		3.5		V

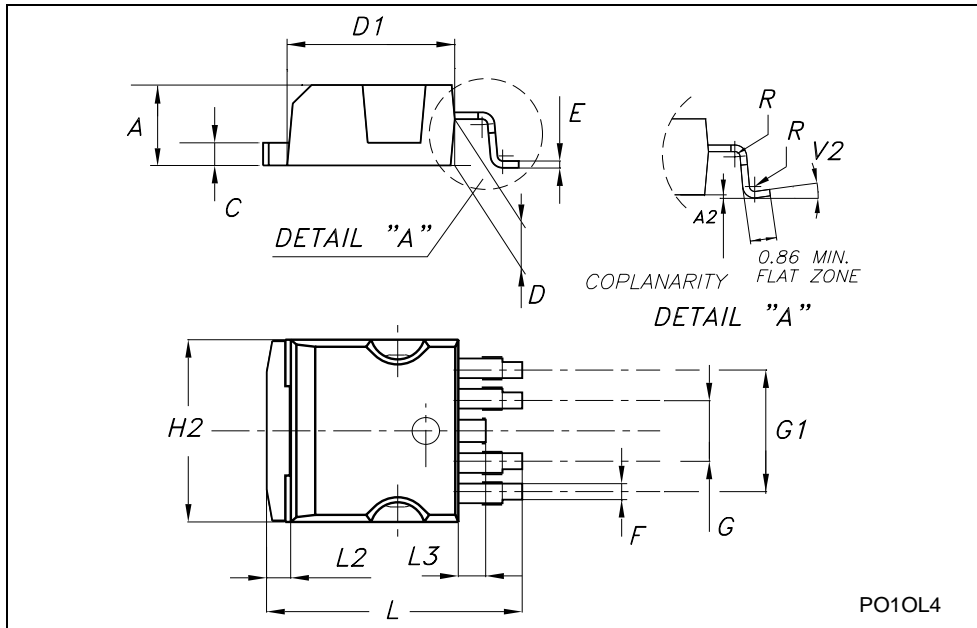
(1) Limited by wire bonding

### 3 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: [www.st.com](http://www.st.com)

**PENTAWATT SMD (P2PAK) MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.30		4.80	0.169		0.188
A2	0.03		0.23	0.001		0.009
C	1.17		1.37	0.046		0.053
D	2.40		2.80	0.094		0.110
D1	8.95		9.35	0.352		0.368
E	0.35		0.55	0.013		0.021
F	0.80		1.05	0.031		0.041
G	3.20		3.60	0.125		0.141
G1	6.60		7.00	0.259		0.275
H2			10.40			0.409
L	13.59		14.39	0.535		0.566
L2	1.27		1.40	0.05		0.055
L3	1.30		1.70	0.051		0.066
R		0.30				
V2	0 d		8 d			



## 4 Revision History

Date	Revision	Changes
22-Jul-2005	1	Initial release.

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