

SE3N150P

**N-Channel Enhancement-Mode MOSFET**

Revision: A

**General Description**

This series is a high voltage power MOSFET and is designed to have better characteristics, such as fast switching time, low gate charge, low on-state resistance and have a high rugged avalanche characteristics

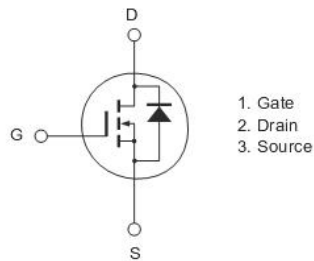
**Features**

For a single MOSFET

- $V_{DS} = 1500V$
- $R_{DS(ON)} = 6\Omega @ V_{GS}=10V$

**Pin configurations**

See Diagram below



**Absolute Maximum Ratings**

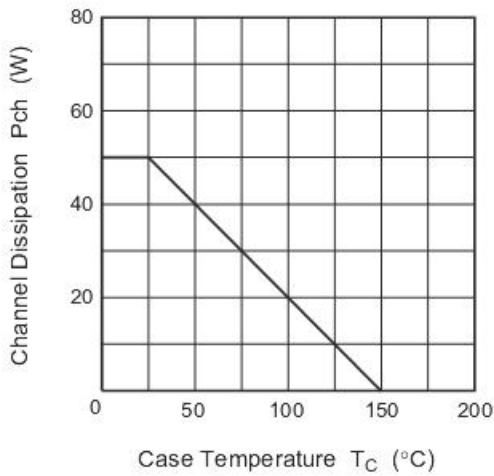
Parameter		Symbol	Rating	Units
Drain-Source Voltage		$V_{DS}$	1500	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Drain Current	Continuous	$I_D$	3	A
	Pulsed		12	
Power Dissipation		$P_D$	63	W
Operating Junction Temperature Range		$T_J$	-55 to 150	$^{\circ}C$

## SE3N150P

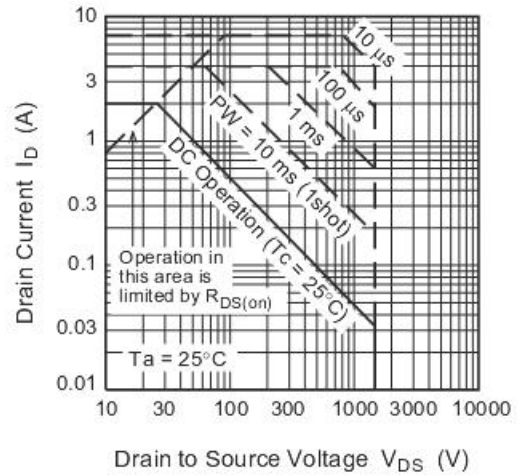
Electrical Characteristics (T <sub>J</sub> =25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
<b>OFF CHARACTERISTICS (Note 2)</b>						
B <sub>V</sub> DSS	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0 V, I <sub>D</sub> =250μA,	1500			V
I <sub>DSS</sub>	Drain to Source Leakage Current	V <sub>DS</sub> =1200V, V <sub>GS</sub> =0V			1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =20V			100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	3.0		5.0	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =1.5A		6	7.2	Ω
<b>DYNAMIC PARAMETERS</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1MHz		1348		pF
C <sub>oss</sub>	Output Capacitance			101		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			15		pF
<b>SWITCHING PARAMETERS</b>						
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> =750V, R <sub>L</sub> =25Ω I <sub>D</sub> =3.0A		45		ns
t <sub>d(off)</sub>	Turn-Off Delay Time			224		ns
t <sub>d(r)</sub>	Turn-On Rise Time			22.5		ns
t <sub>d(f)</sub>	Turn-Off Fall Time			55.5		ns
<b>Source-Drain Diode Characteristics</b>						
V <sub>SD</sub>	Drain-Source Diode Forward Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =2A			1.4	V
t <sub>rr</sub>	Reverse Recovery Time	V <sub>GS</sub> =0V, I <sub>S</sub> =3.0A dI <sub>F</sub> /dt=100A/μs <sup>1</sup>		647.5		ns

Typical Characteristics

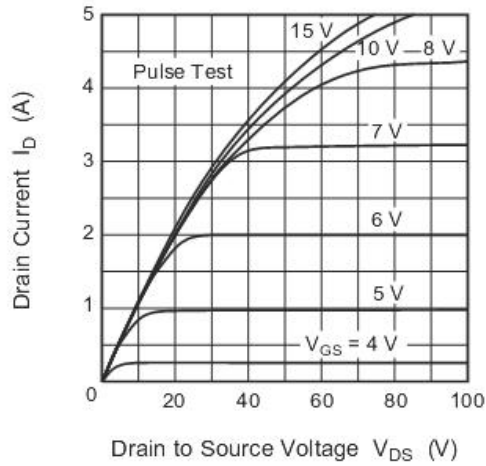
Power vs. Temperature Derating



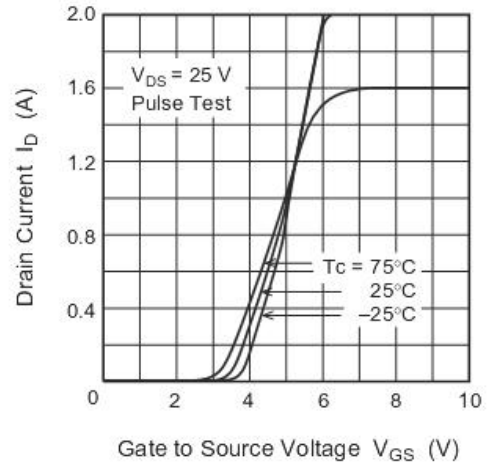
Maximum Safe Operation Area



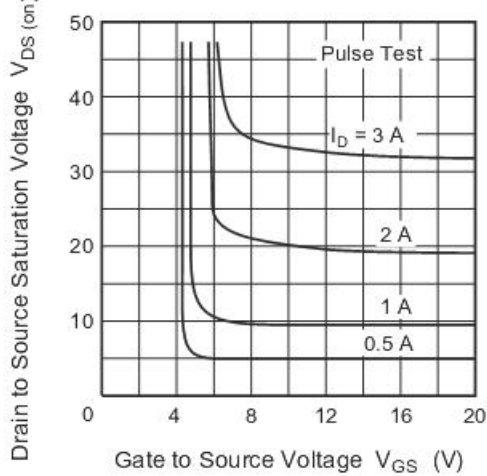
Typical Output Characteristics



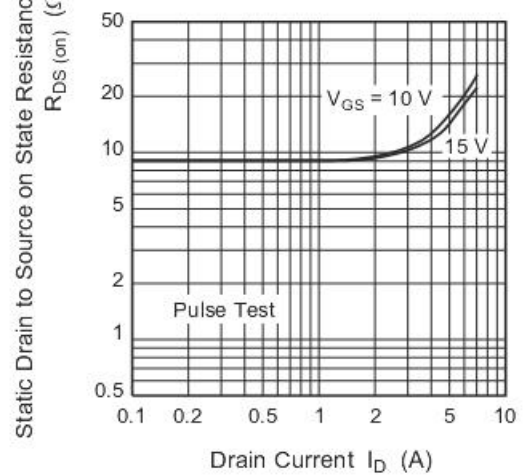
Typical Transfer Characteristics



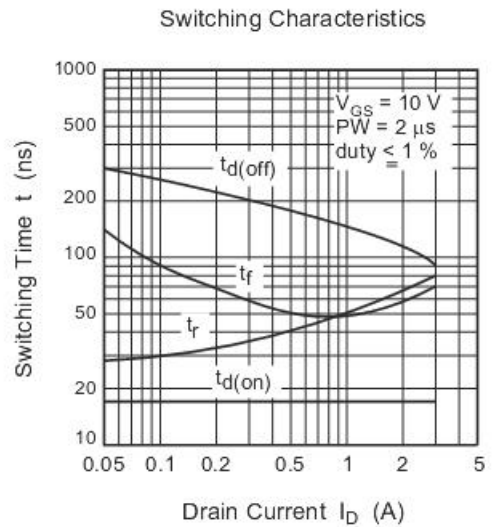
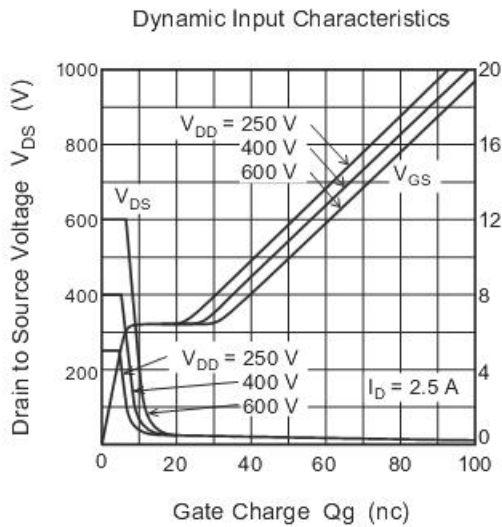
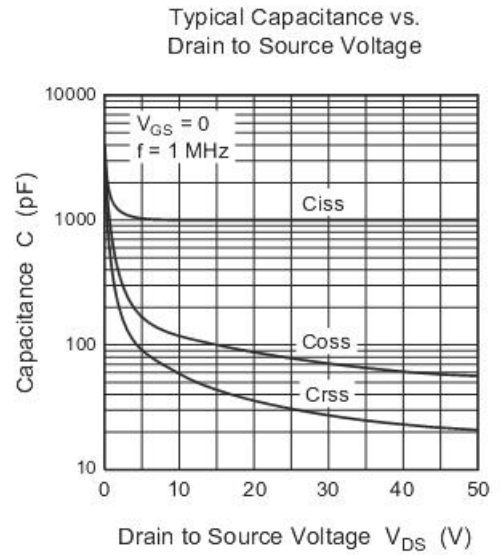
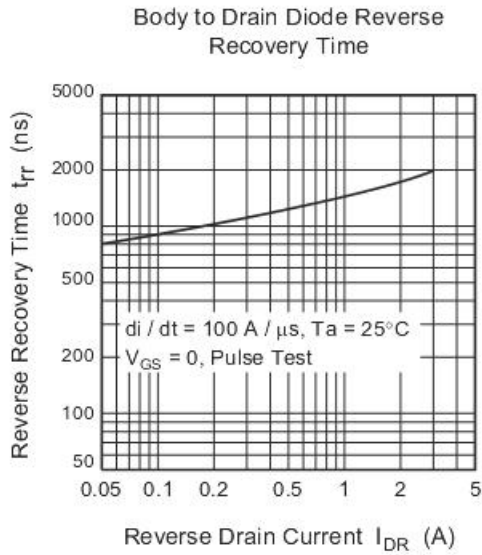
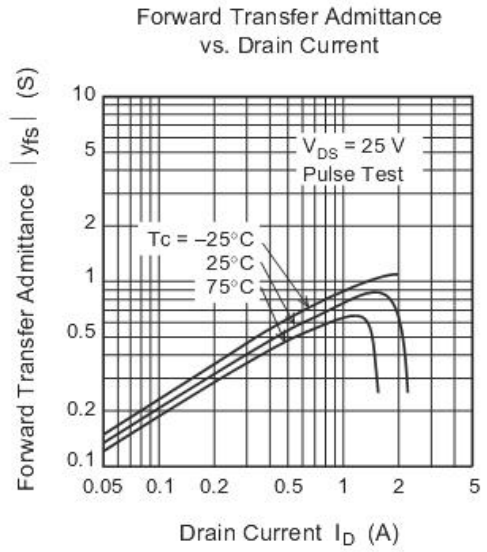
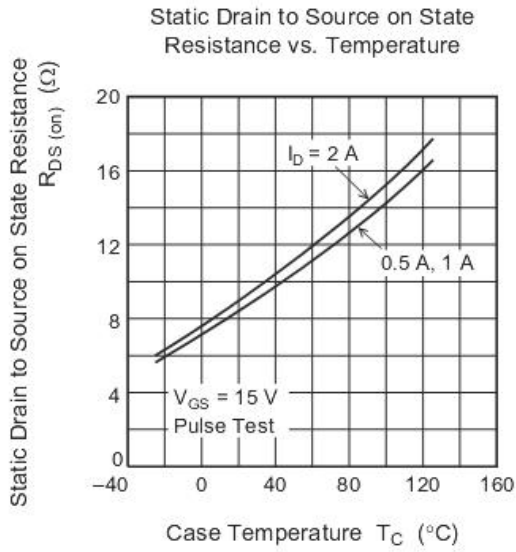
Drain to Source Saturation Voltage vs. Gate to Source Voltage



Static Drain to Source on State Resistance vs. Drain Current



# SE3N150P



# SE3N150P

## Package Outline Dimension

### TO-3P

