



## Dual N-Channel Enhancement Mode Field Effect Transistor

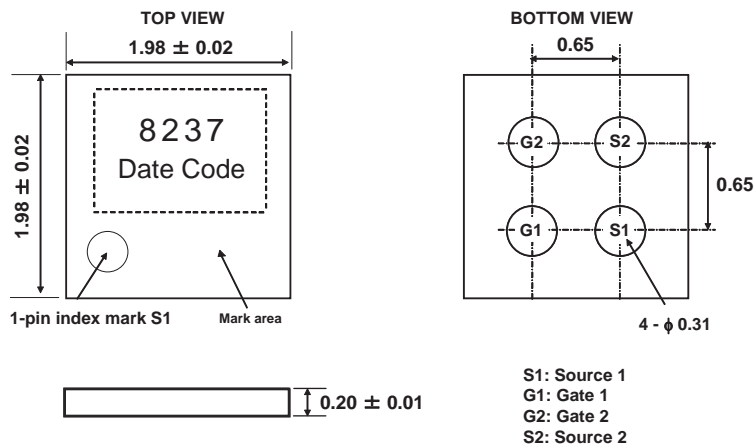
### PRODUCT SUMMARY

V <sub>SSS</sub>	I <sub>S</sub>	R <sub>DS(ON)</sub> (mΩ) Max
16V	9A	9.5 @ V <sub>GS</sub> =4.5V
		10.0 @ V <sub>GS</sub> =4.0V
		11.0 @ V <sub>GS</sub> =3.1V
		12.0 @ V <sub>GS</sub> =2.5V

### FEATURES

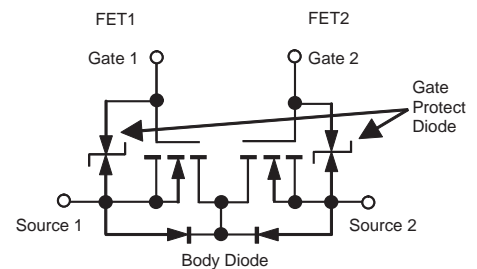
- Super high dense cell design for low R<sub>DS(ON)</sub>.
- Rugged and reliable.
- Wafer level CSP.
- ESD Protected.

### WLCSP



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C)

Symbol	Parameter	Limit	Units
V <sub>SSS</sub>	Source-Source Voltage	16	V
V <sub>GSS</sub>	Gate-Source Voltage	±10	V
I <sub>S</sub>	Source Current-Continuous <sup>a</sup>	9	A
I <sub>SP</sub>	-Pulsed <sup>b</sup>	90	A
P <sub>T</sub>	Total Power Dissipation <sup>a</sup>	1.6	W
T <sub>J</sub> , T <sub>STG</sub>	Operating Junction and Storage Temperature Range	-55 to 150	°C



**ELECTRICAL CHARACTERISTICS** (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV <sub>SSS</sub>	Source-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>S</sub> =250uA	16			V
I <sub>SSS</sub>	Zero Gate Voltage Source Current	V <sub>SS</sub> =16V , V <sub>GS</sub> =0V			1	uA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±8V , V <sub>SS</sub> =0V			±1	uA
ON CHARACTERISTICS						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>SS</sub> =V <sub>GS</sub> , I <sub>S</sub> =1mA	0.4	0.7	1.2	V
R <sub>SS(ON)</sub>	Source-Source On-State Resistance	V <sub>GS</sub> =4.5V , I <sub>S</sub> =4.5A	7.0	8.5	9.5	m ohm
		V <sub>GS</sub> =4.0V , I <sub>S</sub> =4.5A	7.5	8.8	10.0	m ohm
		V <sub>GS</sub> =3.1V , I <sub>S</sub> =4.5A	8.0	9.5	11.0	m ohm
		V <sub>GS</sub> =2.5V , I <sub>S</sub> =4.5A	8.5	10.0	12.0	m ohm
g <sub>FS</sub>	Forward Transconductance	V <sub>SS</sub> =5V , I <sub>S</sub> =4.5A		14		S
DYNAMIC CHARACTERISTICS °						
C <sub>ISS</sub>	Input Capacitance	V <sub>SS</sub> =10V,V <sub>GS</sub> =0V f=1.0MHz		480		pF
C <sub>OSS</sub>	Output Capacitance			226		pF
C <sub>RSS</sub>	Reverse Transfer Capacitance			85		pF
SWITCHING CHARACTERISTICS °						
t <sub>D(ON)</sub>	Turn-On Delay Time	V <sub>DD</sub> =13V I <sub>S</sub> =4.5A V <sub>GS</sub> =4.0V R <sub>GEN</sub> =6 ohm		308		ns
t <sub>r</sub>	Rise Time			1232		ns
t <sub>D(OFF)</sub>	Turn-Off Delay Time			3938		ns
t <sub>f</sub>	Fall Time			2904		ns
Q <sub>g</sub>	Total Gate Charge	V <sub>DD</sub> =13V,I <sub>S</sub> =9A, V <sub>G1S1</sub> =4.0V		16.7		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V <sub>FSS</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V,I <sub>S</sub> =1.5A		0.77	1.2	V
Note						
a.Mounted on FR4 board of 25.4mm x 25.4mm x 1.6mm.						
b.Pulse Test:Pulse Width < 10us, Duty Cycle < 1%.						
c.Guaranteed by design, not subject to production testing.						