

## Dual P-Ch 20V Fast Switching MOSFETs

### Description

The HSSK8811 is the high cell density trenched P-ch MOSFETs, which provides excellent R<sub>DS(ON)</sub> and efficiency for most of the small power switching and load switch applications.

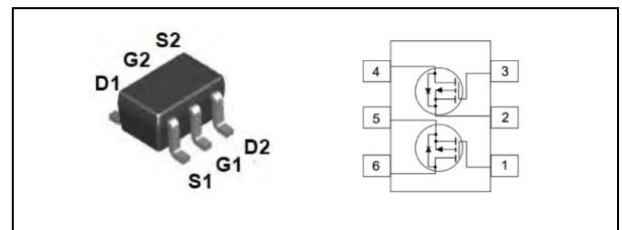
The HSSK8811 meet the RoHS and Green Product requirement with full function reliability approved.

- Green Device Available
- Super Low Gate Charge
- Excellent C<sub>dv/dt</sub> effect decline
- Advanced high cell density Trench technology

### Product Summary

V <sub>DS</sub>	-20	V
R <sub>DS(ON),typ</sub>	115	mΩ
I <sub>D</sub>	-1.5	A

### SOT363 Pin Configuration



### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	-20	V
V <sub>GS</sub>	Gate-Source Voltage	±12	V
I <sub>D</sub> @T <sub>C</sub> =25°C	Continuous Drain Current, V <sub>GS</sub> @ -4.5V <sub>1</sub>	-1.5	A
I <sub>D</sub> @T <sub>C</sub> =70°C	Continuous Drain Current, V <sub>GS</sub> @ -4.5V <sub>1</sub>	-1.2	A
I <sub>DM</sub>	Pulsed Drain Current <sub>2</sub>	-4	A
P <sub>D</sub> @T <sub>A</sub> =25°C	Total Power Dissipation <sub>3</sub>	1.25	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance Junction-ambient <sub>1</sub>	---	125	°C/W
R <sub>θJC</sub>	Thermal Resistance Junction-Case <sub>1</sub>	---	100	°C/W

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### Electrical Characteristics (T<sub>J</sub>=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20	---	---	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance <sup>2</sup>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1.5A	---	115	130	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-1A	---	150	180	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =-250uA	-0.3	-0.65	-1.0	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	---	---	-1	uA
		V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C	---	---	-5	
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =-5V, I <sub>D</sub> =-1A	---	5	---	S
Q <sub>g</sub>	Total Gate Charge (-4.5V)	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1.5A	---	4.1	---	nC
Q <sub>gs</sub>	Gate-Source Charge		---	0.7	---	
Q <sub>gd</sub>	Gate-Drain Charge		---	1	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =-10V, V <sub>GS</sub> =-4.5V, R <sub>G</sub> =3.3Ω I <sub>D</sub> =-1.5A	---	12	---	ns
T <sub>r</sub>	Rise Time		---	20	---	
T <sub>d(off)</sub>	Turn-Off Delay Time		---	23	---	
T <sub>f</sub>	Fall Time		---	9	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V, f=1MHz	---	272	---	pF
C <sub>oss</sub>	Output Capacitance		---	55	---	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	44	---	

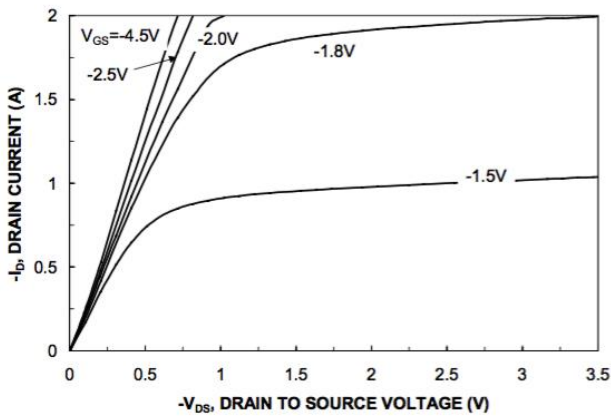
### Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current <sup>1,4</sup>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	---	---	-1.5	A
V <sub>SD</sub>	Diode Forward Voltage <sup>2</sup>	V <sub>GS</sub> =0V, I <sub>S</sub> =-1A, T <sub>J</sub> =25°C	---	---	-1.2	V

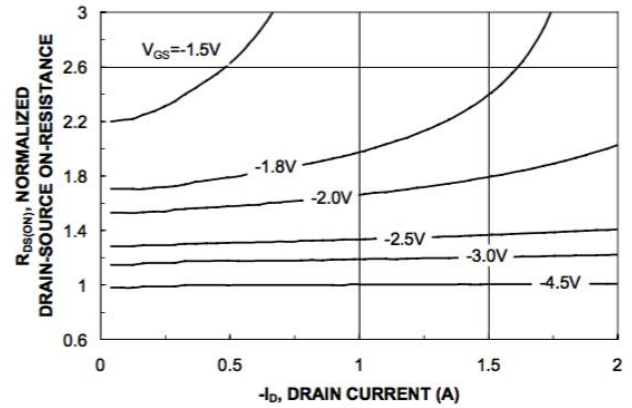
Note :

- 1.The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The power dissipation is limited by 150°C junction temperature
- 4.The data is theoretically the same as I<sub>D</sub> and I<sub>DM</sub> , in real applications , should be limited by total power dissipation.

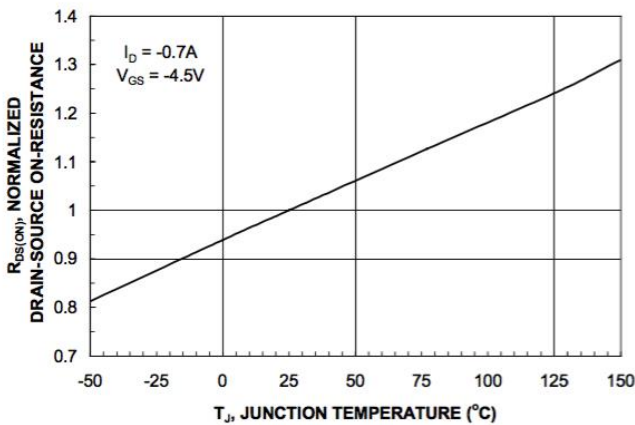
### Typical Characteristics



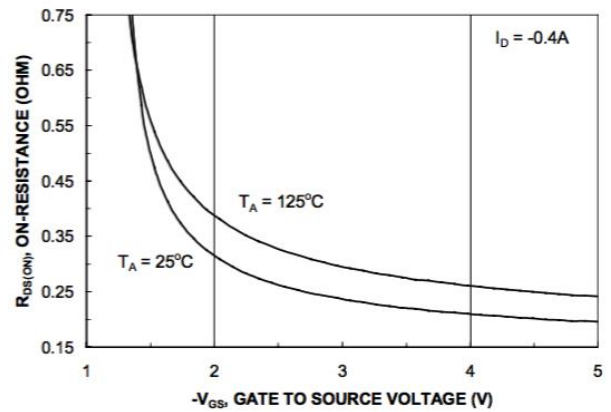
**Figure 1. On-Region Characteristics.**



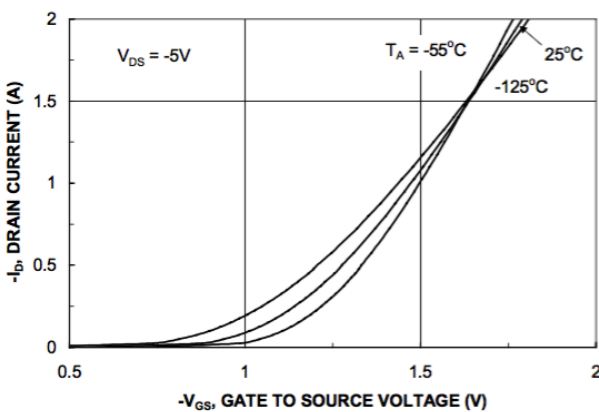
**Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.**



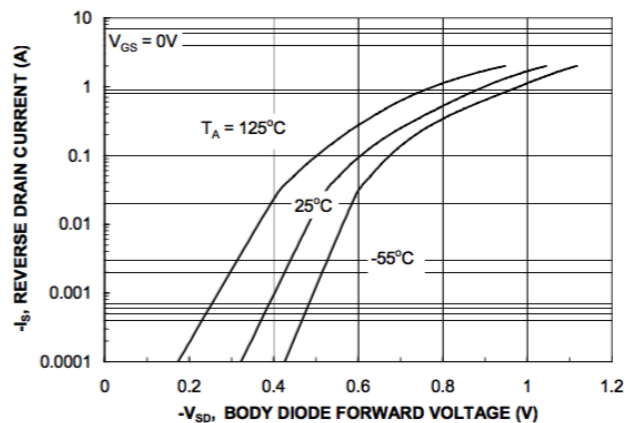
**Figure 3. On-Resistance Variation with Temperature.**



**Figure 4. On-Resistance Variation with Gate-to-Source Voltage.**

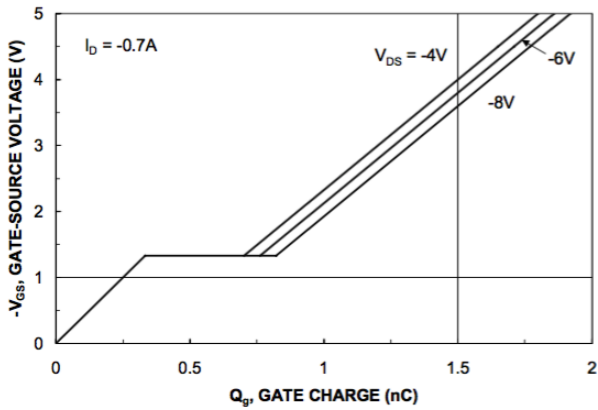


**Figure 5. Transfer Characteristics.**

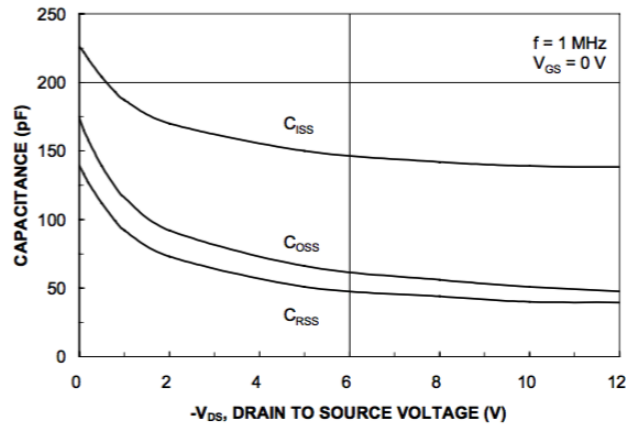


**Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.**

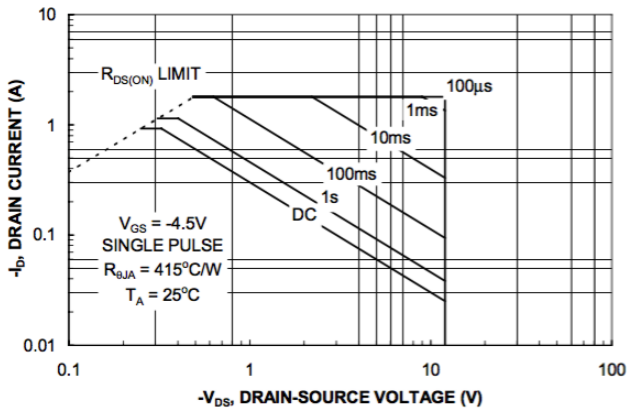
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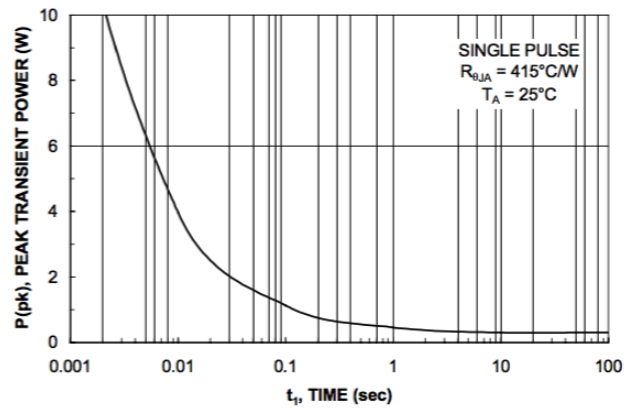
**Figure 7. Gate Charge Characteristics.**



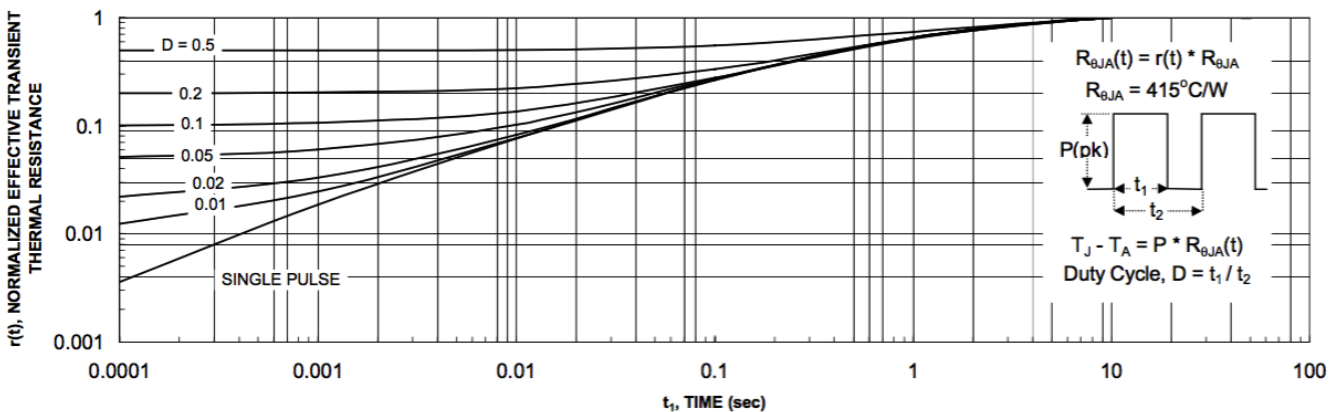
**Figure 8. Capacitance Characteristics.**



**Figure 9. Maximum Safe Operating Area.**



**Figure 10. Single Pulse Maximum Power Dissipation.**



**Figure 11. Transient Thermal Response Curve.**

Thermal characterization performed using the conditions described in Note 1.  
Transient thermal response will change depending on the circuit board design.

## Ordering Information

Part Number	Package code	Packaging
HSSK8811	SOT-363	3000/Tape&Reel

