



Product Summary

$V_{(BR)SSS}$	$R_{DS(on)TYP}$	I_{SS}
20V	31mΩ@4.5V	6A
	33mΩ@4.0V	
	34mΩ@3.8V	
	38mΩ@3.1V	
	46mΩ@2.5V	

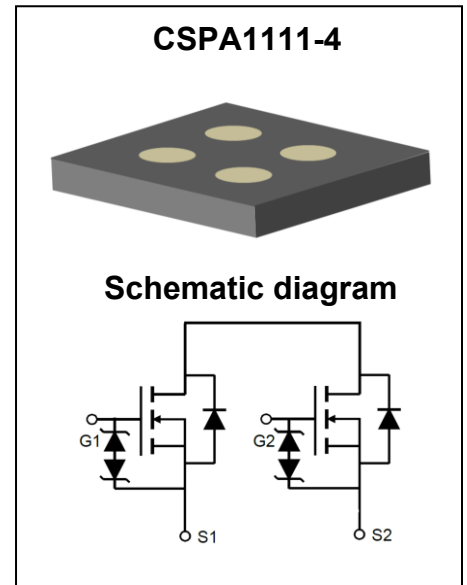
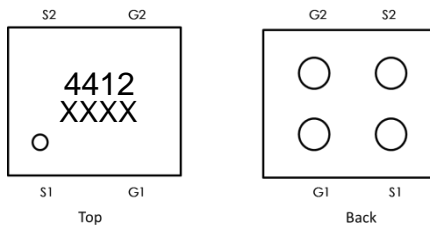
Feature

- Trench Technology
- Common-drain design
- Supper high density cell design
- ESD Diode-Protected Gate
- CSP

Application

- Lithium-ion Battery Charging and Discharging Switch

Marking and pin assignment:



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Source-Source Voltage	V_{SSS}	20	V
Gate-Source Voltage	V_{GSS}	± 12	V
Source Current(DC) ¹	I_S	6.0	A
Source Current (Pulse) ^{1,3}	I_{SP}	60	A
Total Dissipation	P_T	1.4	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$

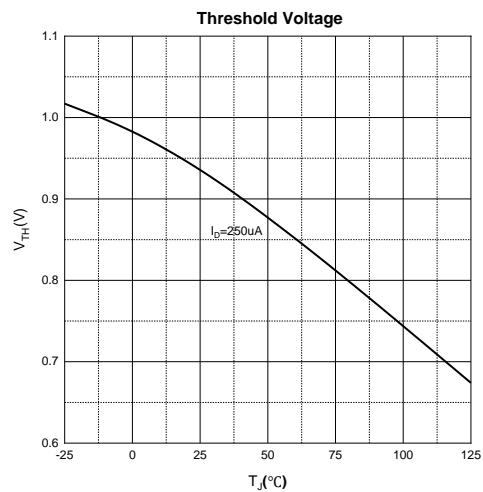
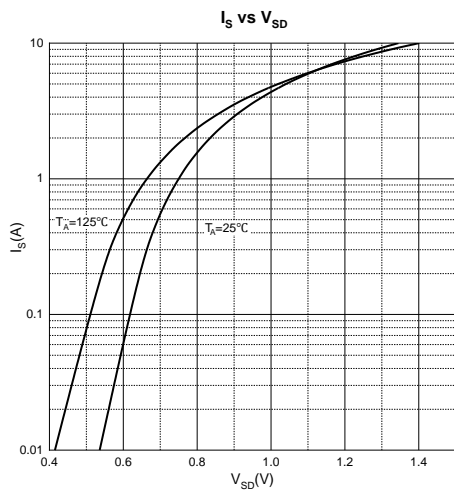
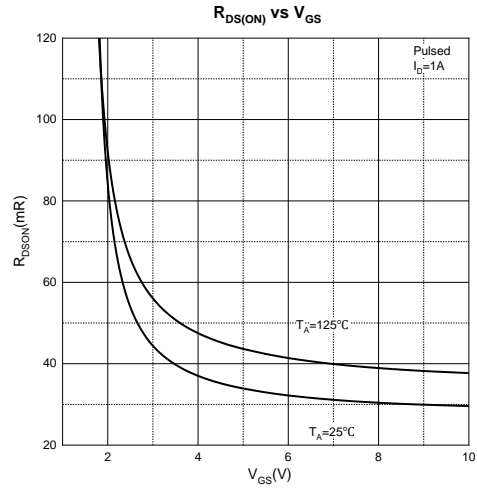
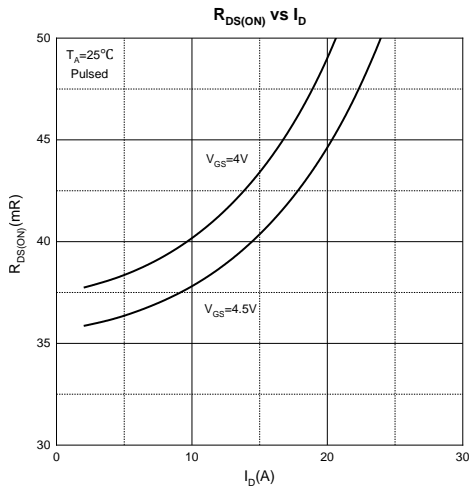
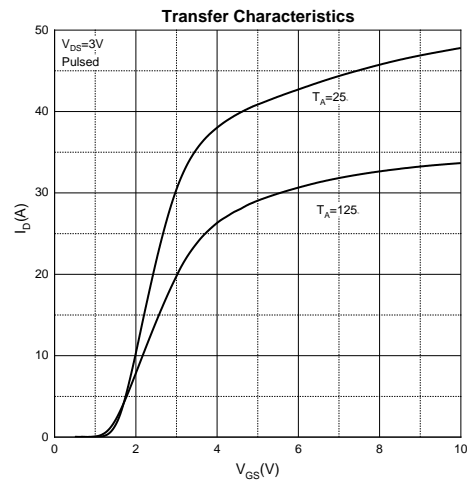
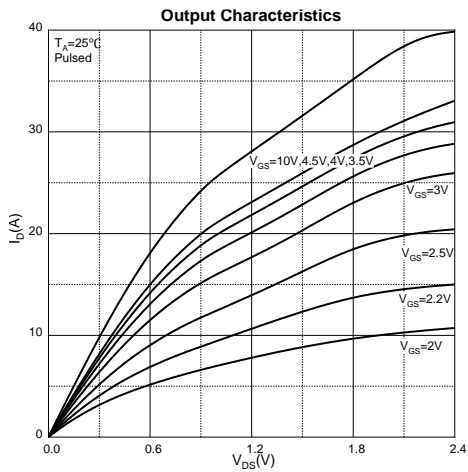
MOSFET ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Source-Source Breakdown Voltage	BV _{SSS}	V _{GS} = 0V, I _S = 250μA	20			V
Zero Gate Voltage Source Current	I _{SSS}	V _{SS} = 20V, V _{GS} = 0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = ±8V, V _{SS} = 0V			±10	μA
On Characteristics						
Gate-Source Threshold Voltage	V _{GS(th)}	V _{SS} = 10V, I _S = 1mA	0.5	0.8	1.3	V
Source-Source On-Resistance	R _{SS(on)}	V _{GS} = 4.5V, I _S = 1A	21	31	36	mΩ
		V _{GS} = 4.0V, I _S = 1A	22	33	38	
		V _{GS} = 3.8V, I _S = 1A	23	34	40	
		V _{GS} = 3.0V, I _S = 1A	26	38	45	
		V _{GS} = 2.5V, I _S = 1A	30	46	60	
Dynamic Characteristics⁴						
Input Capacitance	C _{iss}	V _{SS} = 10V, V _{GS} = 0V, f = 1.0MHz		416		pF
Output Capacitance	C _{oss}			76		
Reverse Transfer Capacitance	C _{rss}			58		
Gate Resistance	R _g	V _{SS} = 0V, V _{GS} = 0V		405		Ω
Switching Characteristics⁴						
Total Gate Charge	Q _g	V _{SS} = 15V, V _{GS} = 4.5V, I _S = 1A		8.4		nC
Gate-Source Charge	Q _{gs}			1.2		
Gate-Drain Charge	Q _{gd}			2.9		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10V, V _{GS} = 4.5V, I _S = 3A		1		μs
Turn-On Rise Time	t _r			4		
Turn-Off Delay Time	t _{d(off)}			10		
Turn-Off Fall Time	t _f			10		
Source-Drain Diode Characteristics						
Diode Forward Voltage	V _{F(S-S)}	V _{GS} = 0V, I _S = 3A			1.2	V

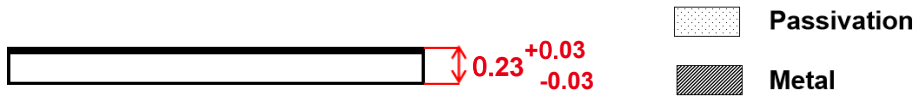
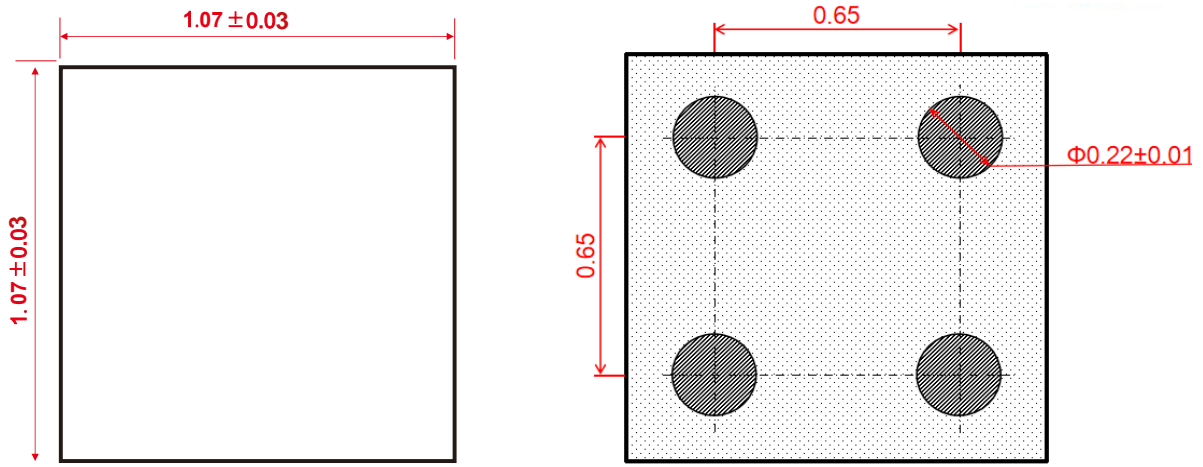
Notes :

1. Mounted on FR-4 board (25.4 mm × 25.4 mm × t1.0 mm) with 1oz. Copper, using the minimum recommended pad size.
2. Mounted on Ceramic substrate (70 mm × 70 mm × t1.0 mm) with 2oz. Copper.
3. Pulse Test : Pulse Width = 10μs, duty cycle ≤ 1%.
4. Guaranteed by design, not subject to production testing.

Typical Characteristics



CSPA1111-4 Package Outline Dimensions(Unit:mm)



Attention:

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.