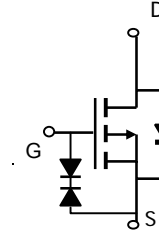


Main Product Characteristics

$V_{(BR)DSS}$	-20V
$R_{DS(ON)MAX}$	50m Ω @-4.5V
	60m Ω @-2.5V
	73m Ω @-1.8V
I_D	-4 A



SOT-23



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for DC-DC converter, power management in portable battery, computer, printer, cellular and general purpose applications
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The SSF3415 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current ($t \leq 10S$)	I_D	-4.0	A
Maximum Power Dissipation ($t \leq 10S$)	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}C/W$
Operating Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}C$

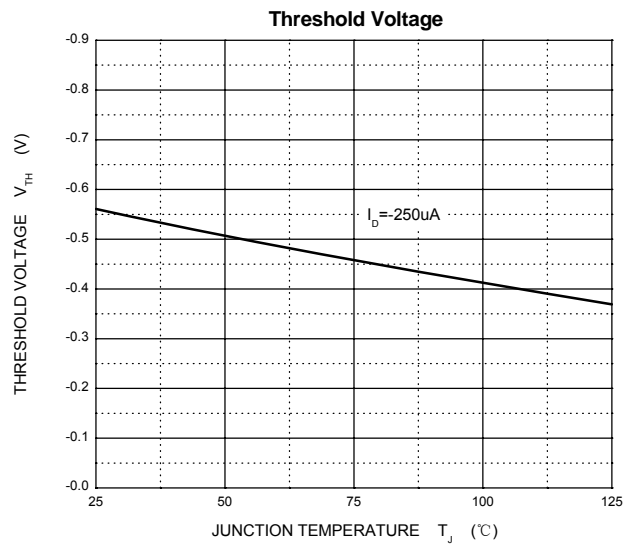
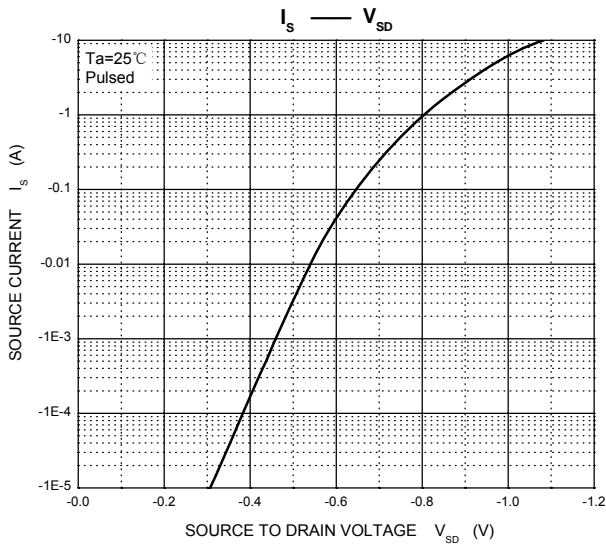
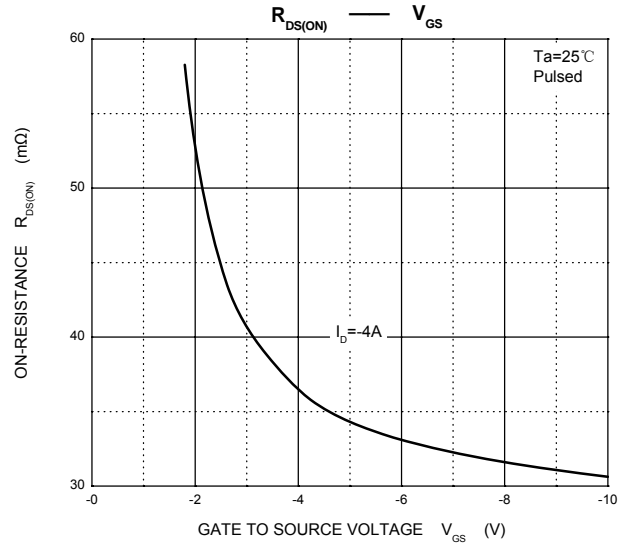
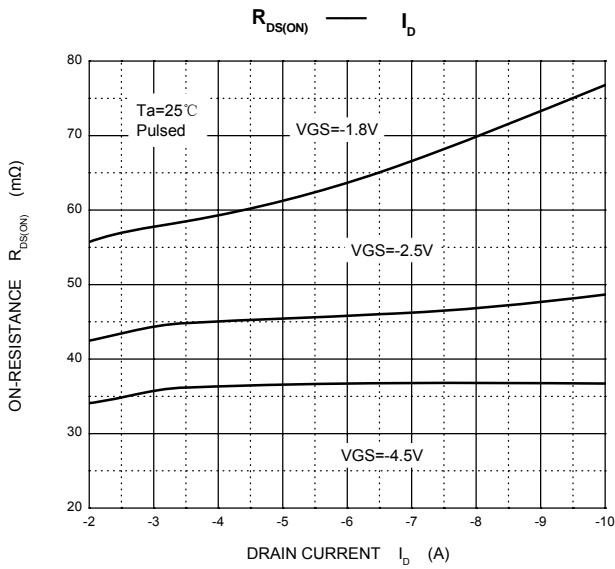
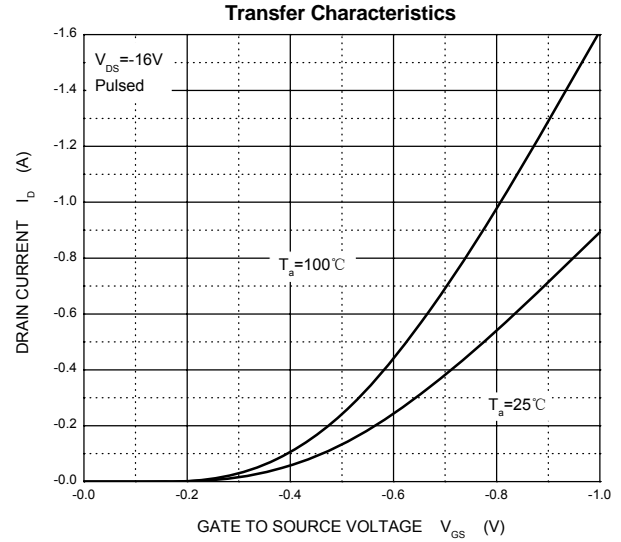
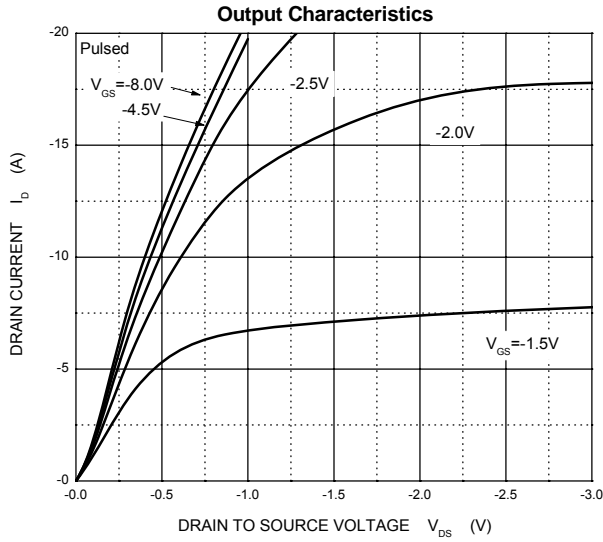
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.3	-0.56	-1	
Gate-body leakage current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±10	μA
		V _{DS} = 0V, V _{GS} = ±4.5V			±1	
Zero gate voltage drain current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	
Drain-source on-state resistance(note1)	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -4A		0.037	0.050	Ω
		V _{GS} = -2.5V, I _D = -4A		0.045	0.060	
		V _{GS} = -1.8V, I _D = -2A		0.056	0.073	
Forward transconductance(note2)	g _{FS}	V _{DS} = -5V, I _D = -4A	8			S
Body diode voltage(note2)	V _{SD}	I _S = -1A, V _{GS} = 0V			-1	V
Dynamic Parameters						
Input capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		1450		pF
Output capacitance	C _{oss}			205		
Reverse transfer capacitance	C _{rss}			160		
Gate resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		6.5		Ω
Switching Parameters						
Total gate charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -4A		17.2		nC
Gate-Source charge	Q _{gs}			1.3		
Gate-drain charge	Q _{gd}			4.5		
Turn-on delay time (note3)	t _{d(on)}	V _{DS} = -10V, V _{GS} = -4.5V R _{GEN} = 3Ω, R _L = 2.5Ω,		9.5		nS
Turn-on rise time(note3)	t _r			17		
Turn-off delay time(note3)	t _{d(off)}			94		
Turn-off fall time(note3)	t _f			35		

Notes:

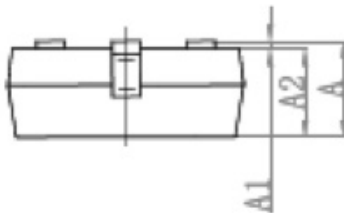
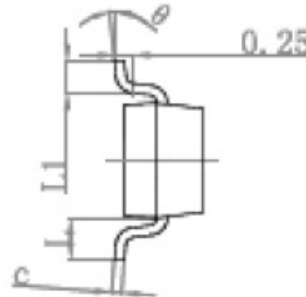
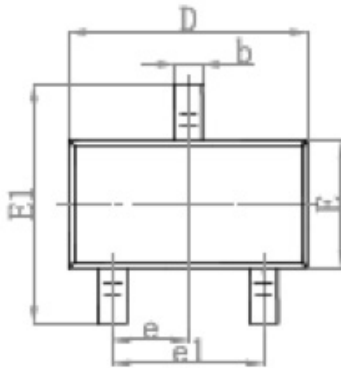
1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width ≤ 300μS, duty cycle ≤ 2%.

Typical Electrical and Thermal Characteristics



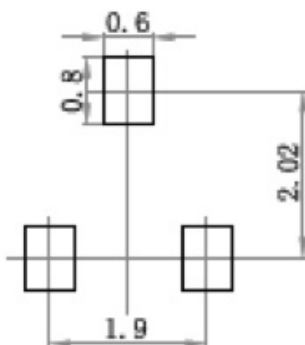
Package Outline Dimensions

SOT-23



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05mm.
 3. The pad layout is for reference purposes only.