



Features

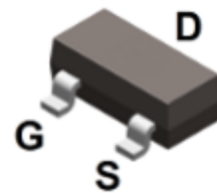
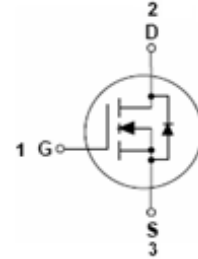
- Low input capacitance
- High V_{DSS} rating for power application
- Low input / output leakage

Typical Applications

- Motor control
- DC-DC converters
- Power management functions

Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matted-Tin plated; Solderable Per MIL-STD-202, Method 208



SOT-23

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BSS127	SOT-23	3000 pcs / Tape & Reel	K29

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	600	V
Gate-to-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current *1 ($V_{GS} = 10\text{V}$, $T_A = 25^\circ\text{C}$)	I_D	50	mA
Continuous Drain Current *1 ($V_{GS} = 10\text{V}$, $T_A = 70^\circ\text{C}$)	I_D	40	mA
Continuous Drain Current *2 ($V_{GS} = 10\text{V}$, $T_A = 25^\circ\text{C}$)	I_D	70	mA
Continuous Drain Current *2 ($V_{GS} = 10\text{V}$, $T_A = 70^\circ\text{C}$)	I_D	55	mA
Continuous Drain Current *1 ($V_{GS} = 5\text{V}$, $T_A = 25^\circ\text{C}$)	I_D	45	mA
Continuous Drain Current *1 ($V_{GS} = 5\text{V}$, $T_A = 70^\circ\text{C}$)	I_D	35	mA
Continuous Drain Current *2 ($V_{GS} = 5\text{V}$, $T_A = 25^\circ\text{C}$)	I_D	65	mA
Continuous Drain Current *2 ($V_{GS} = 5\text{V}$, $T_A = 70^\circ\text{C}$)	I_D	50	mA
Pulsed Drain Current *3 ($T_{SP} = 25^\circ\text{C}$)	I_{DM}	0.16	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ^{*1}	P _D	0.61	W
Thermal Resistance Junction-to-Air ^{*1}	R _{θJA}	204	°C/W
Power Dissipation ^{*2}	P _D	1.25	W
Thermal Resistance Junction-to-Air ^{*2}	R _{θJA}	100	°C/W
Operating Junction Temperature Range	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics ^{*4}						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	600	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 600V, V _{GS} = 0V	-	-	0.1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics ^{*4}						
R _{DS(ON)}	Static Drain-Source On-resistance	V _{GS} = 10V, I _D = 16mA	-	25	160	Ω
		V _{GS} = 5V, I _D = 16mA	-	30	190	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	2	-	4	V
Dynamic Characteristics ^{*5}						
C _{ISS}	Input Capacitance	V _{GS} = 0V	-	40	-	pF
C _{OSS}	Output Capacitance	V _{DS} = 25V	-	15	-	
C _{RSS}	Reverse Transfer Capacitance	f = 1.0MHz	-	2	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time	V _{DD} = 100V V _{GS} = 10V R _G = 25Ω I _D = 0.2A	-	30	-	ns
t _r	Turn-on Rise Time		-	10	-	
t _{d(OFF)}	Turn-Off Delay Time		-	53	-	
t _f	Turn-Off Fall Time		-	18	-	
Q _G	Total Gate-Charge	V _{DD} = 480V I _D = 0.2A V _{GS} = 10V	-	10	-	nC
Q _{GS}	Gate to Source Charge		-	1.5	-	
Q _{GD}	Gate to Drain (Miller) Charge		-	6	-	
Source-Drain Diode Characteristics ^{*4}						
V _{SD}	Diode Forward Voltage	I _{SD} = 16mA, V _{GS} = 0V	-	-	1.5	V
t _{rr}	Reverse Recovery Time	I _F = 1A, V _{GS} = 0V	-	200	-	ns
Q _{rr}	Reverse Recovery Charge	di/dt = 100A/μs	-	320	-	nC

Notes:

- Device mounted on FR-4 PCB with minimum recommended pad layout, single sided
- Device mounted on 1" x 1" FR-4 PCB with high coverage 2 oz. copper, single sided
- Repetitive rating, pulse width limited by junction temperature, 10μs pulse, duty cycle = 1%
- Short duration pulse test used to minimize self-heating effect
- Guaranteed by design. Not subject to production testing



Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

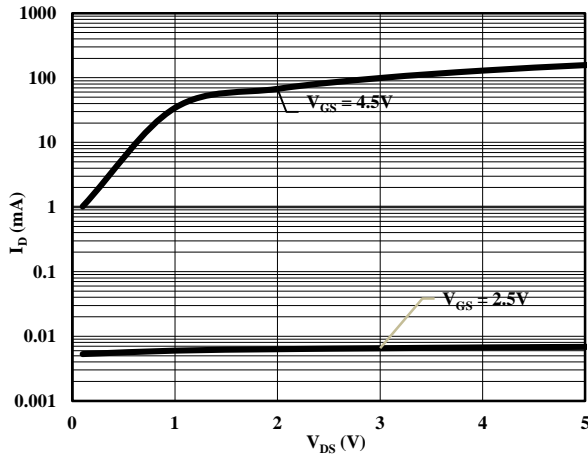


Fig 1 On-Region Characteristics

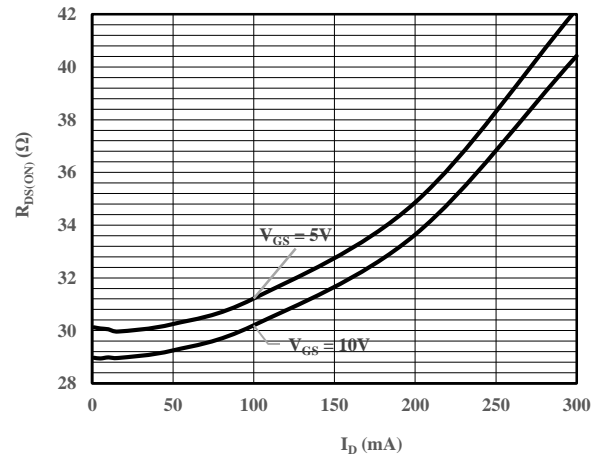


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

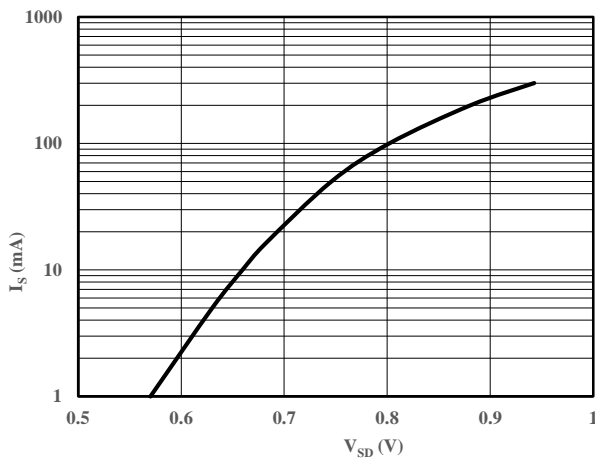
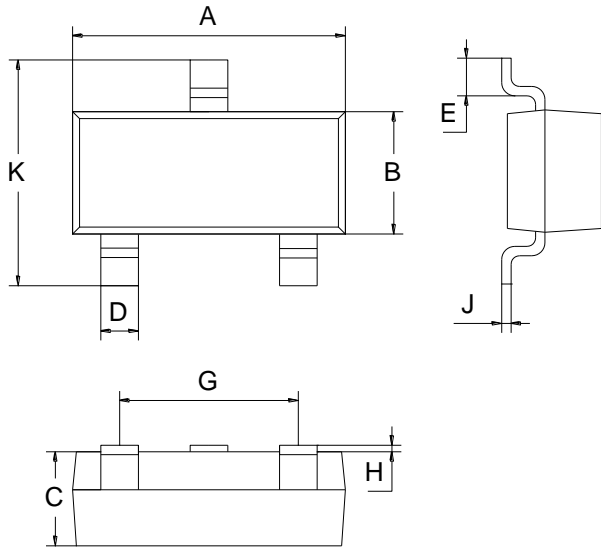


Fig 3 Body-Diode Characteristics



Package Outline Dimensions (Unit: mm)



SOT-23		
Dimension	Min.	Max.
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60

Mounting Pad Layout (Unit: mm)

SOT-23

