

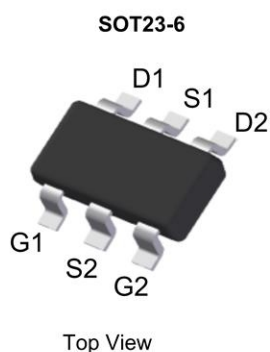
Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D Max T _A = +25°C
50V	2.4Ω @ V _{GS} = 10V	500mA
	4.0Ω @ V _{GS} = 4V	390mA

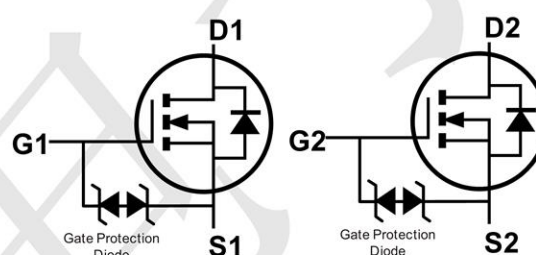
Application

- Notebook
- Load Switch
- Networking
- Hand-held Instruments

Package and Pin Configuration



Circuit diagram



Marking: 02Nf

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

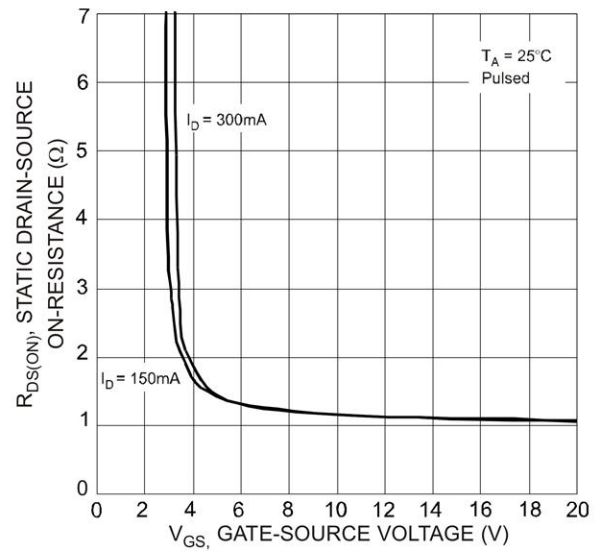
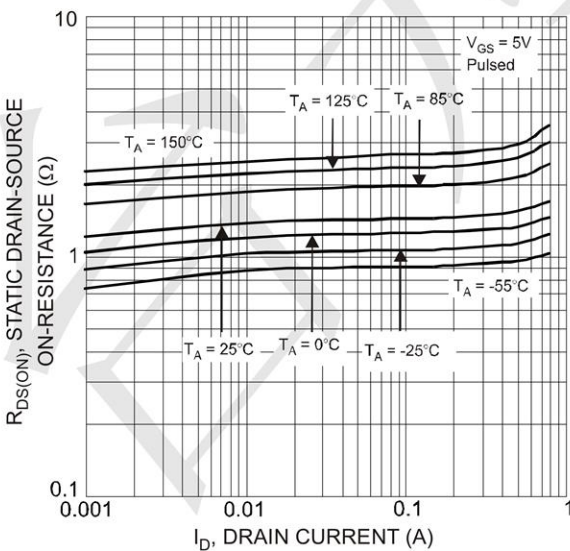
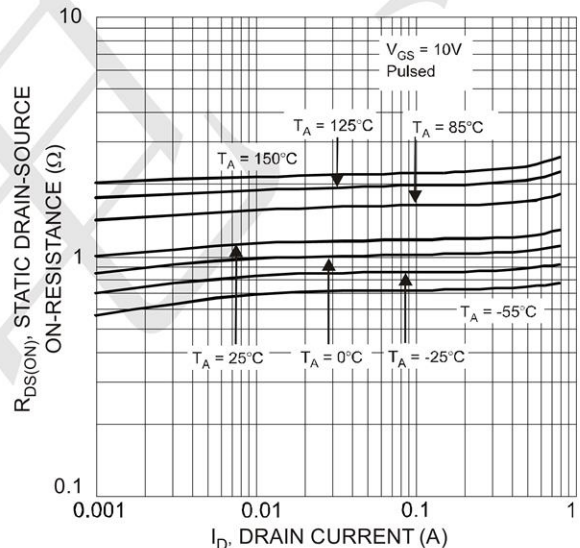
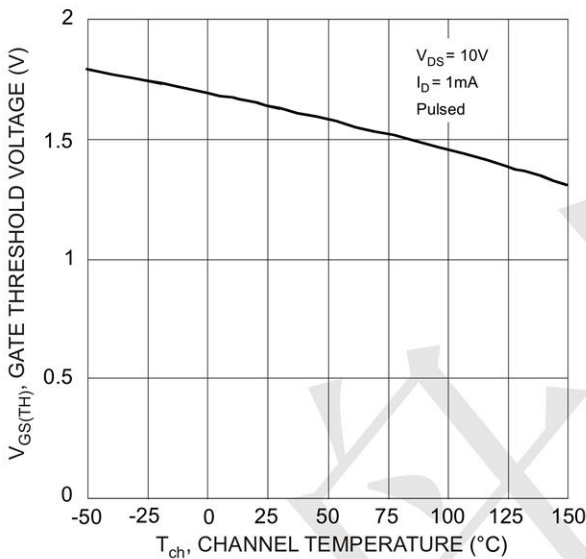
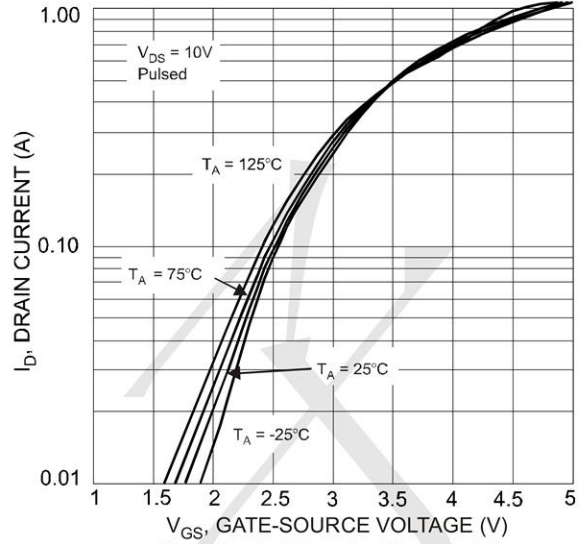
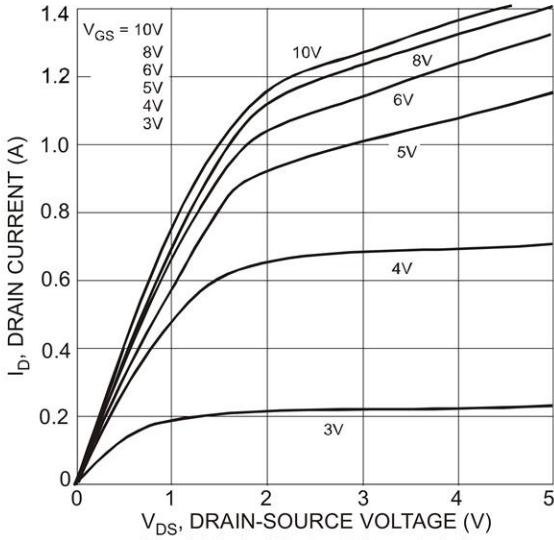
Characteristic	Symbol	Value	Unit	
Drain-Source Voltage	V _{DSS}	50	V	
Gate-Source Voltage	V _{GSS}	±20	V	
Continuous Drain Current (Note 6) (V _{GS} = 10V)	Steady State	T _A = +25°C T _A = +70°C	500 400	mA
	t < 10s	T _A = +25°C T _A = +70°C	580 470	mA
Continuous Drain Current (Note 6) (V _{GS} = 4V)	Steady State	T _A = +25°C T _A = +70°C	390 300	mA
	t < 10s	T _A = +25°C T _A = +70°C	440 340	mA
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)	I _{DM}	850	mA	
Maximum Body Diode Continuous Current	I _S	510	mA	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	0.7	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	157	°C/W
	t < 10s	121	
Total Power Dissipation (Note 6)	P _D	0.98	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	113	°C/W
	t < 10s	88	
Thermal Resistance, Junction to Case (Note 6)	R _{θJC}	26	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	50	65	—	V	$V_{GS} = 0V, I_D = 10\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	$V_{DS} = 50V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 20V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	1.0	1.6	2.5	V	$V_{DS} = 10V, I_D = 1mA$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	1.2 1.5	2.4 4.0	Ω	$V_{GS} = 10V, I_D = 200mA$ $V_{GS} = 4V, I_D = 200mA$
Forward Transfer Admittance	$ Y_{fs} $	100	—	—	mS	$V_{DS} = 10V, I_D = 200mA$
Diode Forward Voltage	V_{SD}	0.5	0.8	1.4	V	$V_{GS} = 0V, I_S = 115mA$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	30	50	pF	$V_{DS} = 25V, V_{GS} = 0V$ $f = 1.0MHz$
Output Capacitance	C_{oss}	—	5	25	pF	
Reverse Transfer Capacitance	C_{rss}	—	3	5	pF	
Gate Resistance	R_g	—	133	—	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$
Total Gate Charge	Q_g	—	304	—	pC	$V_{GS} = 4.5V, V_{DS} = 10V,$ $I_D = 250mA$
Gate-Source Charge	Q_{gs}	—	84	—		
Gate-Drain Charge	Q_{gd}	—	203	—		
Turn-On Delay Time	$t_{D(ON)}$	—	3.9	—	ns	$V_{DS} = 30V, I_D = 0.2A,$ $V_{GS} = 10V, R_G = 25\Omega, R_L = 150\Omega$
Turn-On Rise Time	t_R	—	3.4	—		
Turn-Off Delay Time	$t_{D(OFF)}$	—	15.7	—		
Turn-Off Fall Time	t_F	—	9.9	—		



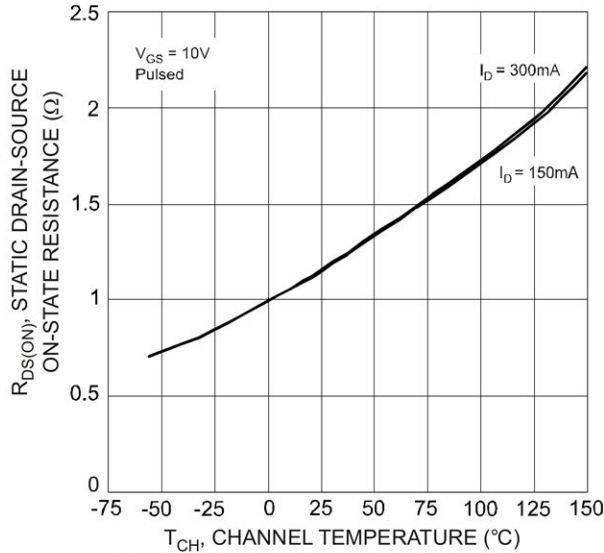


Fig. 7 Static Drain-Source On-State Resistance vs. Channel Temperature

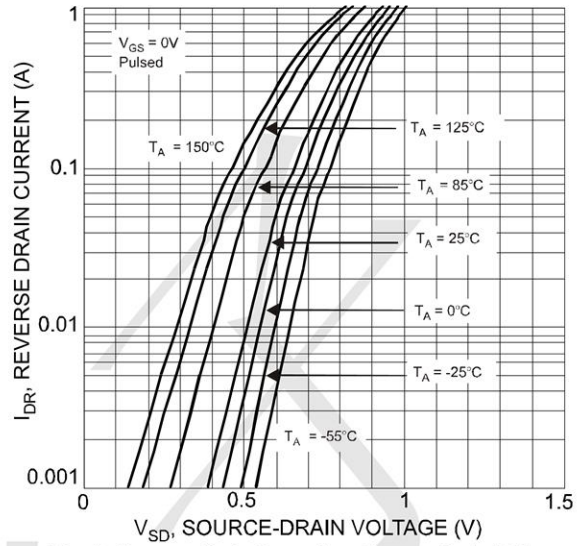


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

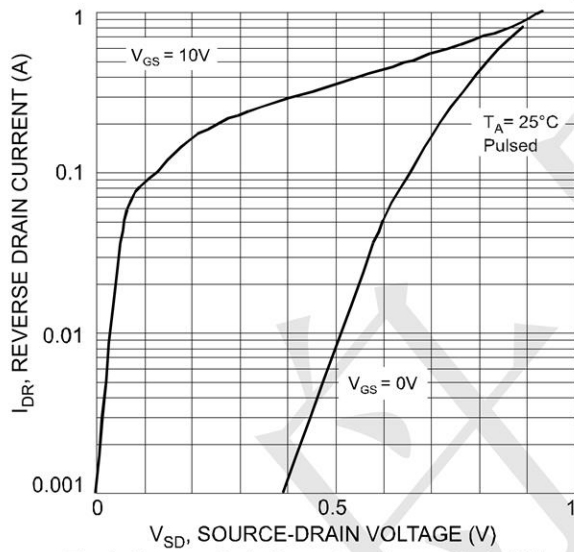


Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

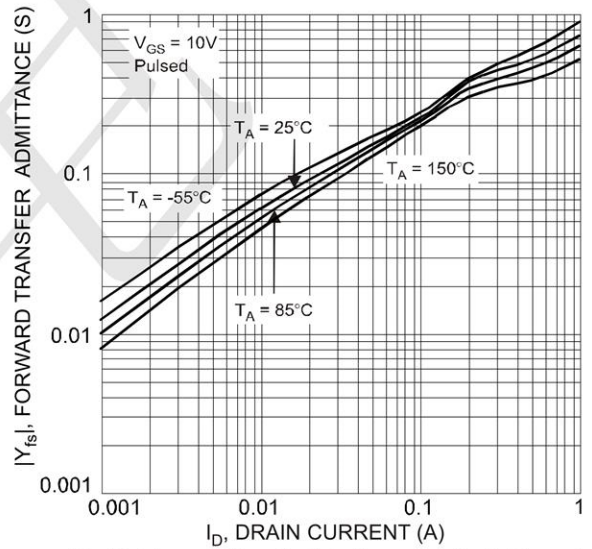
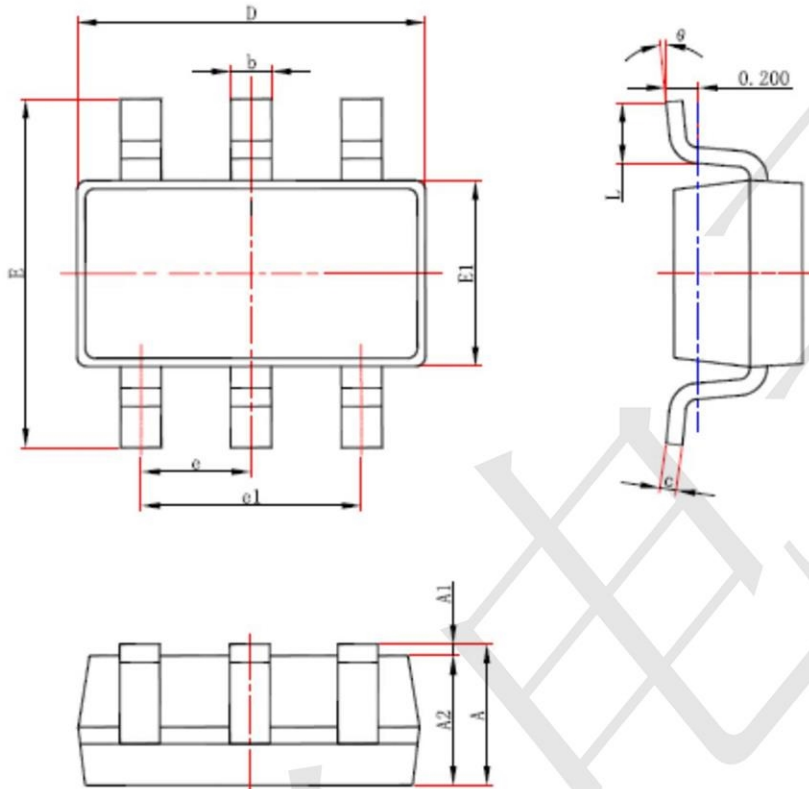


Fig. 10 Forward Transfer Admittance vs. Drain Current



SOT23-6 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°