

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	0.8mΩ@10V	210A
	1.2mΩ@4.5V	



合肥矽普半导体

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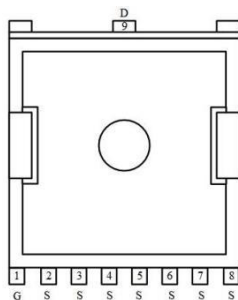
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Applications

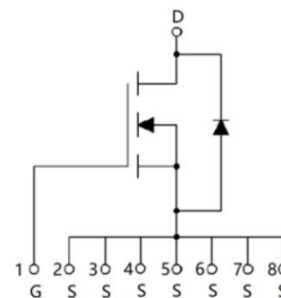
- Power switching application
- DC-DC Converter
- Power Management

Package

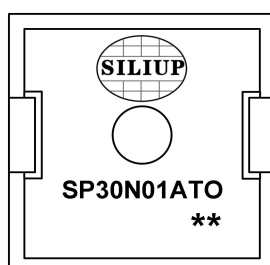


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Circuit diagram



Marking



SP30N01ATO : Product code
****** : Week code

Order Information

Device	Package	Unit/Tape
SP30N01ATO	TOLL	2000

Absolute maximum ratings (Ta=25°C, unless otherwise noted)

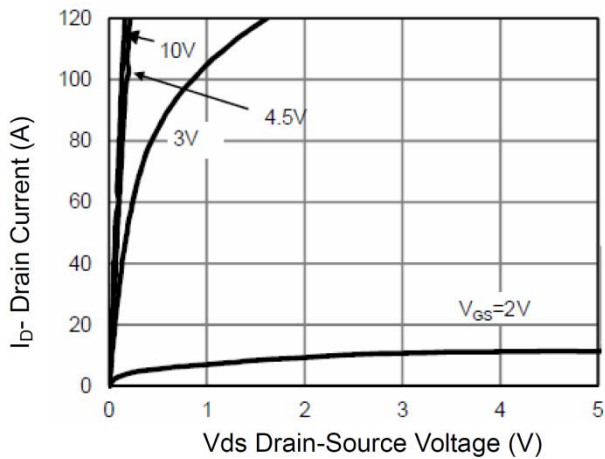
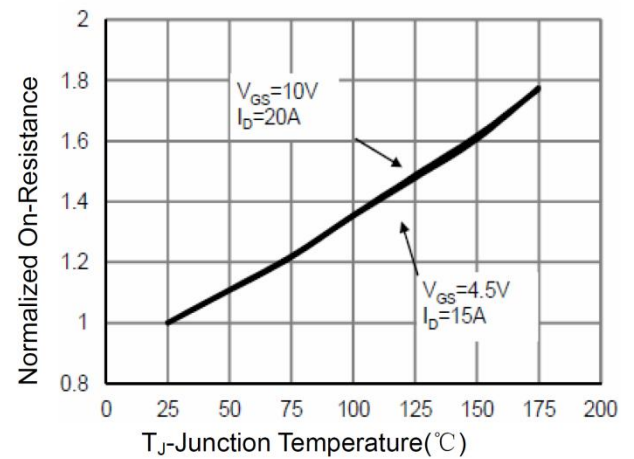
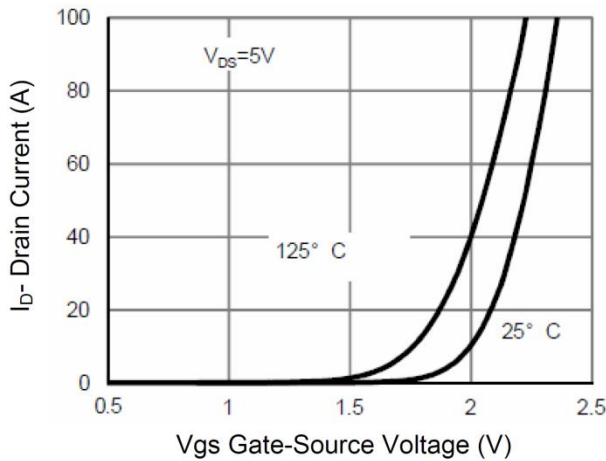
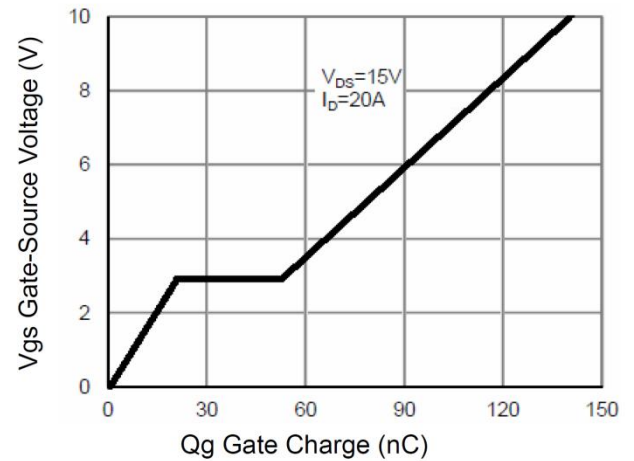
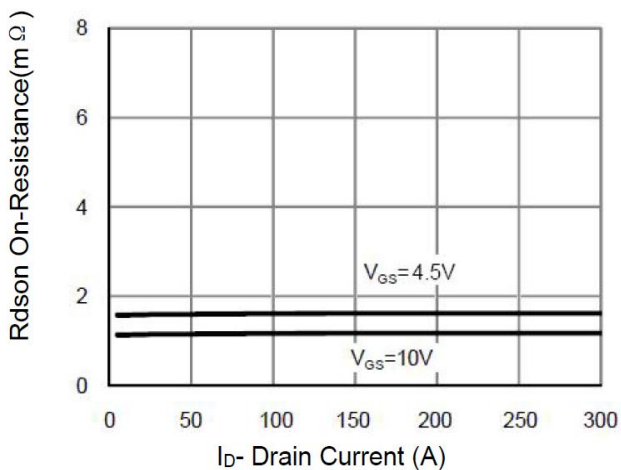
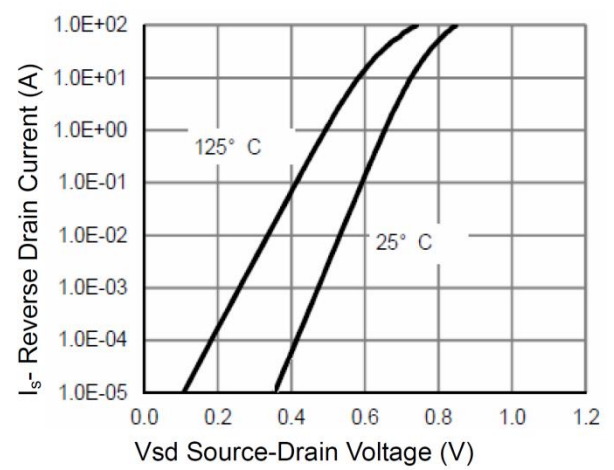
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current1 (Tc=25°C)	I_D	210	A
Continuous Drain Current1 (Tc=100°C)	I_D	140	A
Pulsed Drain Current	I_{DM}	840	A
Single Pulse Avalanche Energy ¹	E_{AS}	1188	mJ
Power Dissipation (Tc=25°C)	P_D	120	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.04	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

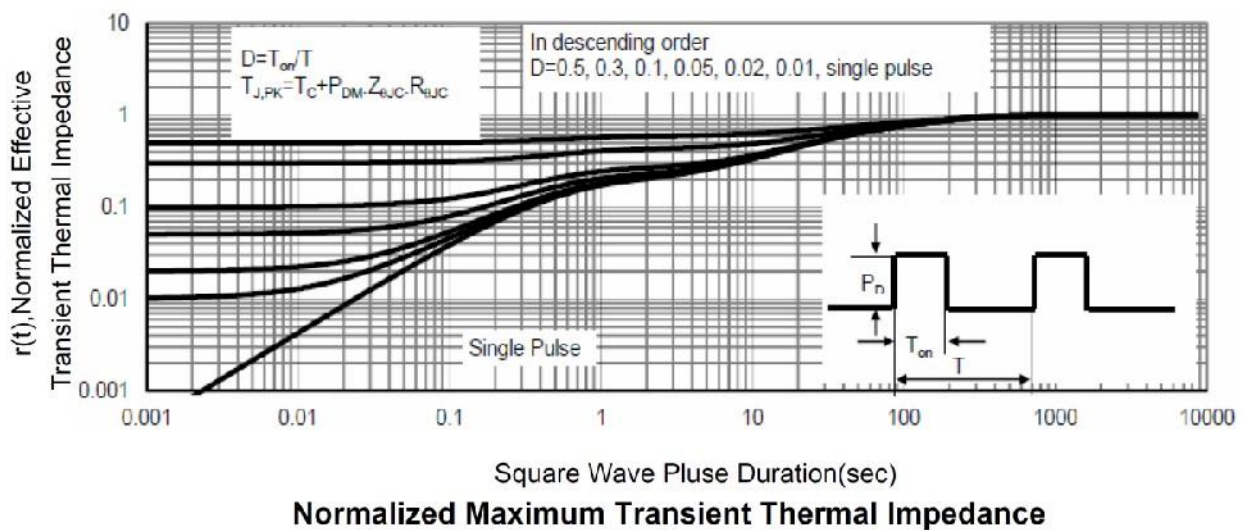
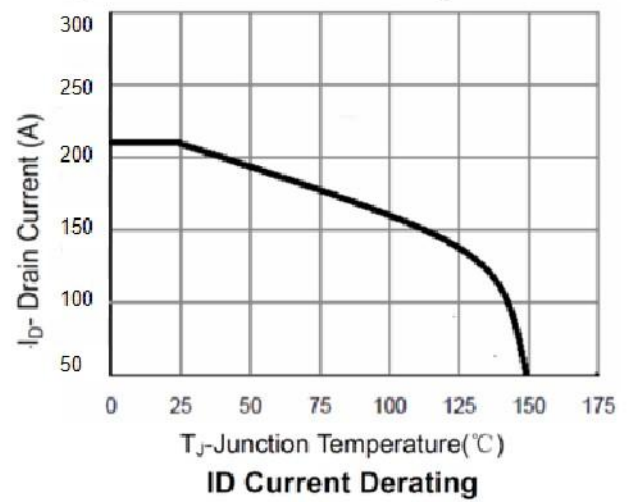
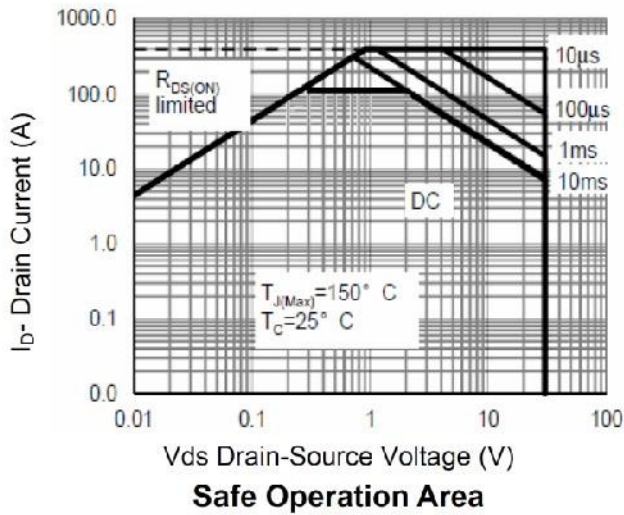
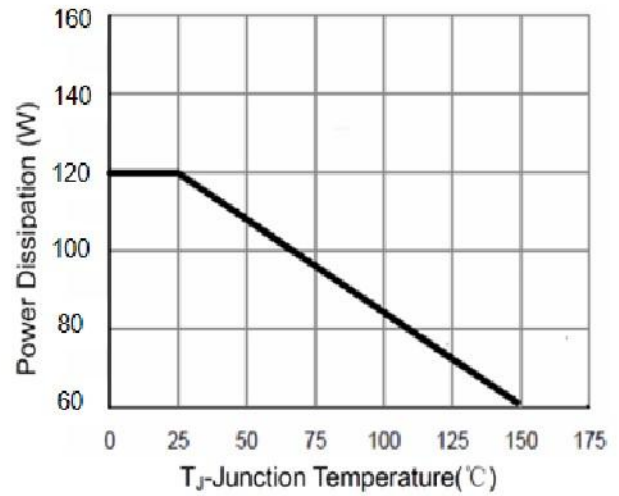
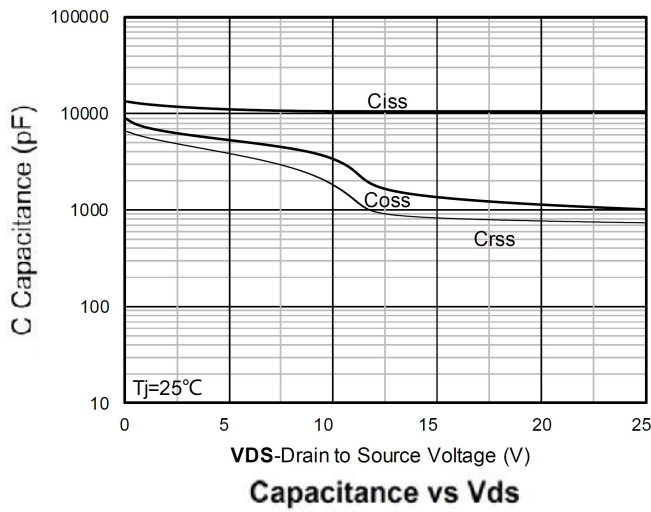
Electrical characteristics (Ta=25°C, unless otherwise noted)

Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250μA, V _{GS} = 0V	30	35	-	V
Drain Cut-Off Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V	-	-	1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±0.1	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.8	2.5	V
Drain-Source ON Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 30A	-	0.8	1	mΩ
		V _{GS} = 4.5V, I _D = 20A	-	1.2	1.6	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} = 0V, f = 1.0MHz	-	10130	-	pF
Output Capacitance	C _{oss}		-	1148	-	
Reverse Transfer Capacitance	C _{rss}		-	944	-	
Total Gate Charge	Q _g	V _{DS} =15V , V _{GS} =10V , I _D =30A	-	160	-	nC
Gate-Source Charge	Q _{gs}		-	22	-	
Gate-Drain Charge	Q _{gd}		-	35	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DS} = 15V, R _L = 15Ω R _G = 2.5Ω	-	25	-	nS
Rise Time	t _r		-	25.5	-	
Turn-Off Delay Time	t _{d(off)}		-	93	-	
Fall Time	t _f		-	37	-	
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V _{SD}	I _S = 1A, V _{GS} = 0V	-	-	1.2	V
Maximum Body-Diode Continuous Current	I _S		-	-	170	A
Body Diode Reverse Recovery Time	T _{rr}	I _S =20A, di/dt=100A/us, T _J =25℃	-	36	-	nS
Body Diode Reverse Recovery Charge	Q _{rr}		-	42	-	nC

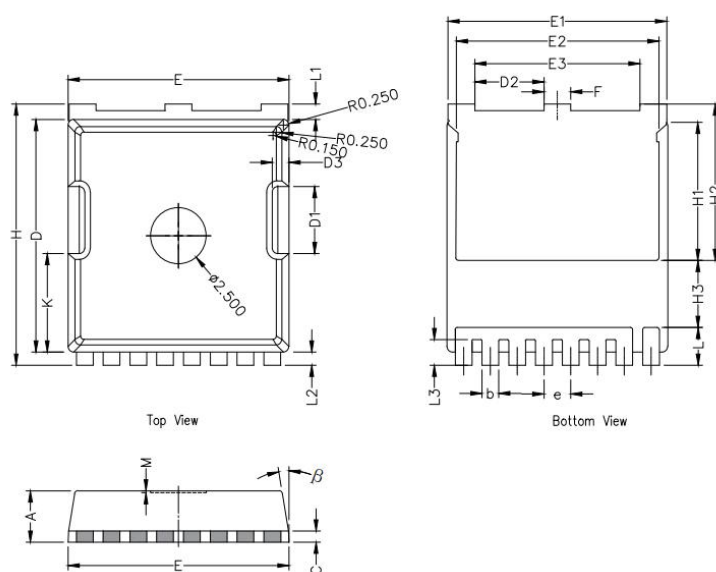
Note :

1. The test condition is $V_{DD} = 30V, V_{GS} = 10V, L = 0.3mH, R_G = 25\Omega$;

**Typical Characteristics****Output Characteristics****Rdson-Junction Temperature****Transfer Characteristics****Gate Charge****Rdson- Drain Current****Source- Drain Diode Forward**



TOLL Package Information



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	2.20	2.30	2.40
b	0.65	0.75	0.85
C	0.508 REF		
D	10.25	10.40	10.55
D1	2.85	3.00	3.15
E	9.75	9.90	10.05
E1	9.65	9.80	9.95
E2	8.95	9.10	9.25
E3	7.25	7.40	7.55
e	1.20 BSC		
F	1.05	1.20	1.35
H	11.55	11.70	11.85
H1	6.03	6.18	6.33
H2	6.85	7.00	7.15
H3	3.00 BSC		
L	1.55	1.70	1.85
L1	0.55	0.7	0.85
L2	0.45	0.6	0.75
M	0.08 REF.		
β	8°	10°	12°
K	4.25	4.40	4.55