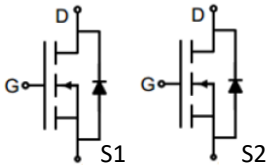
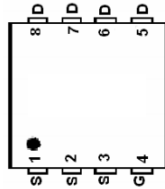
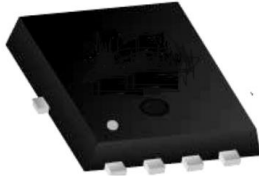


N-Channel Enhancement Mode Power MOSFET

Description The GT090N06D52 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.		 Schematic diagram	
General Features • V_{DS} 60V • I_D (at $V_{GS} = 10V$) 40A • $R_{DS(ON)}$ (at $V_{GS} = 10V$) < 9mΩ • $R_{DS(ON)}$ (at $V_{GS} = 4.5V$) < 13mΩ • 100% Avalanche Tested • RoHS Compliant		 Marking and pin assignment	
Application • Power switch • DC/DC converters • Synchronous Rectification		 DFN5*6双基	
Device	Package	Marking	Packaging
GT090N06D52	DFN5*6	GT090N06	2500pcs/Reel

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	V
Continuous Drain Current	I_D	40	A
Pulsed Drain Current (note1)	I_{DM}	140	A
Gate-Source Voltage	V_{GSS}	± 20	V
Power Dissipation	P_D	62	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	$^\circ\text{C}$

Thermal Resistance

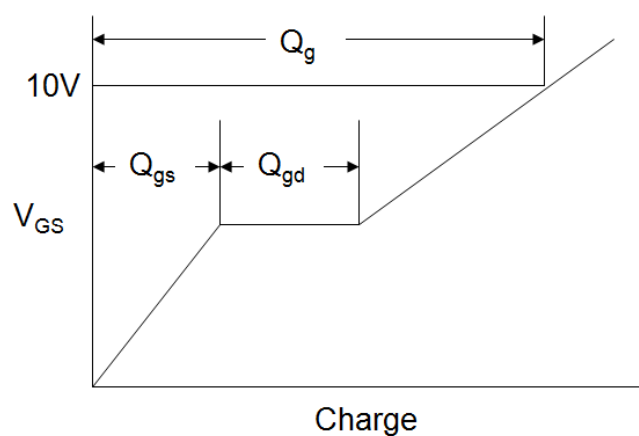
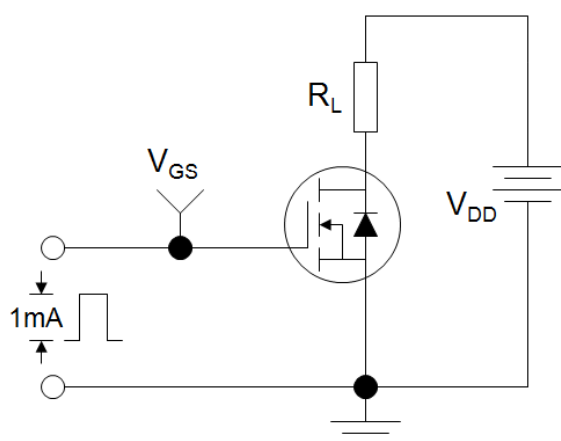
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R_{thJA}	65	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	R_{thJC}	2	$^\circ\text{C/W}$

Specifications T _J = 25°C, unless otherwise noted						
Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V, T _J = 25°C	--	--	1	μA
Gate-Source Leakage	I _{GSS}	V _{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.3	2.4	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 14A	--	8.5	9	mΩ
		V _{GS} = 4.5V, I _D = 10A	--	10.5	13	
Forward Transconductance	g _{FS}	V _{DS} =5V,I _D =20A	--	26	--	S
Dynamic Parameters						
Input Capacitance	C _{ISS}	V _{GS} = 0V, V _{DS} = 30V, f = 1.0MHz	--	1620	--	pF
Output Capacitance	C _{OSS}		--	415	--	
Reverse Transfer Capacitance	C _{rSS}		--	3	--	
Total Gate Charge	Q _g	V _{DD} = 30V, I _D = 20A, V _{GS} = 10V	--	24	--	nC
Gate-Source Charge	Q _{gs}		--	5	--	
Gate-Drain Charge	Q _{gd}		--	3	--	
Turn-on Delay Time	t _{d(on)}	V _{DD} = 30V, I _D = 20A, R _G = 10Ω	--	9	--	ns
Turn-on Rise Time	t _r		--	4	--	
Turn-off Delay Time	t _{d(off)}		--	29	--	
Turn-off Fall Time	t _f		--	4	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S	T _C = 25°C	--	--	40	A
Body Diode Voltage	V _{SD}	T _J = 25°C, I _{SD} = 14A, V _{GS} = 0V	--	--	1.2	V
Reverse Recovery Time	T _{rr}	I _S = 20A, V _{GS} = 0V di/dt=300A/us	--	30	--	ns
Reverse Recovery Charge	Q _{rr}		--	43	--	ns

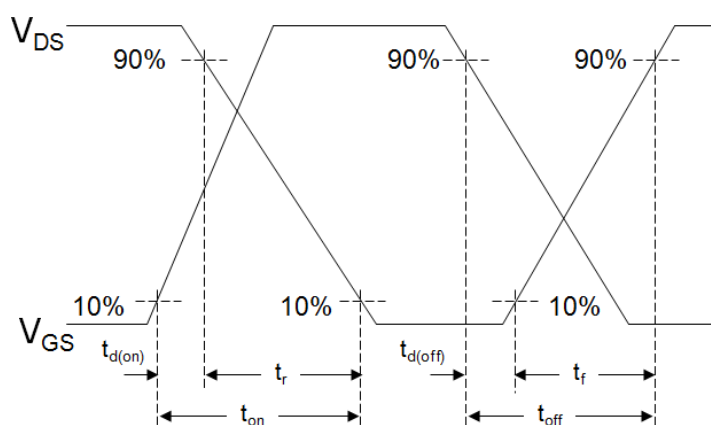
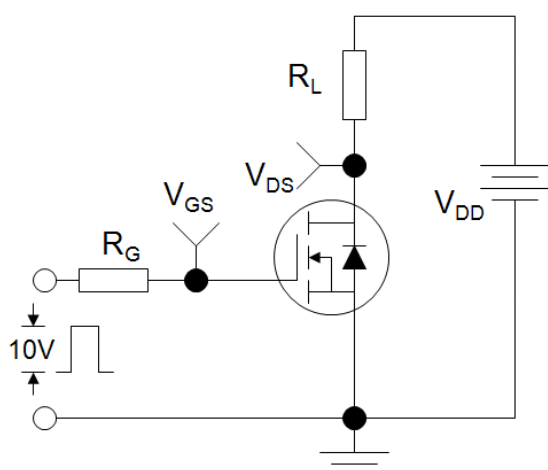
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical R_G

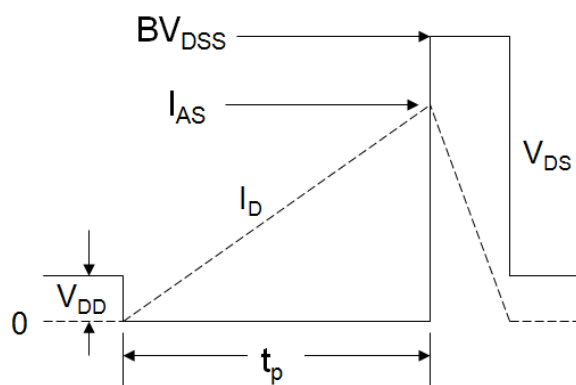
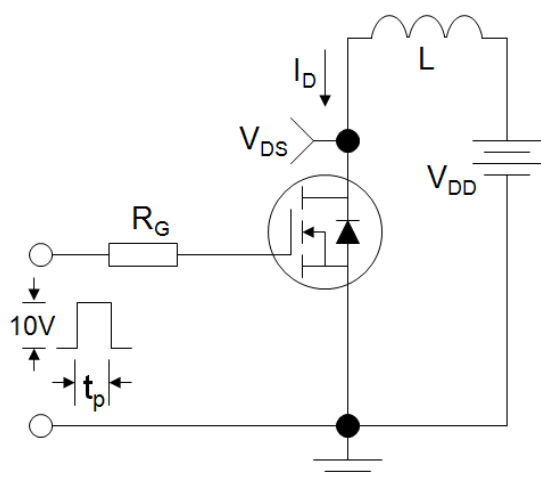
Gate Charge Test Circuit



EAS Test Circuit



Switch Time Test Circuit



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1. Output Characteristics

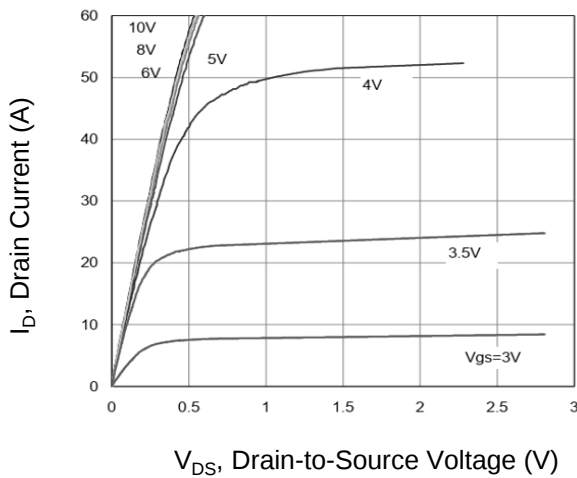


Figure 2. Transfer Characteristics

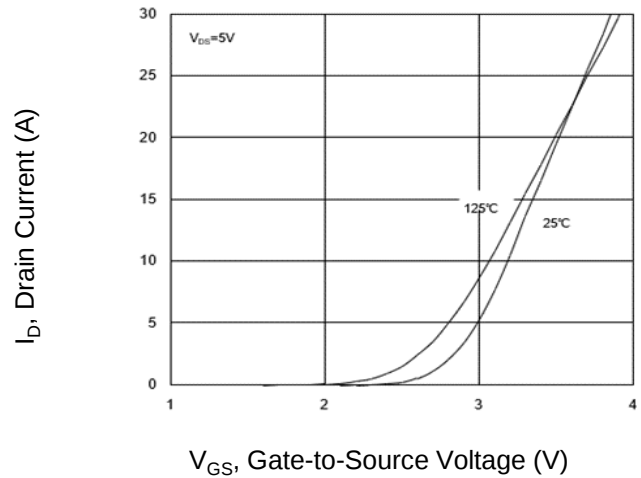


Figure 3. $R_{DS(on)}$ -Drain Current

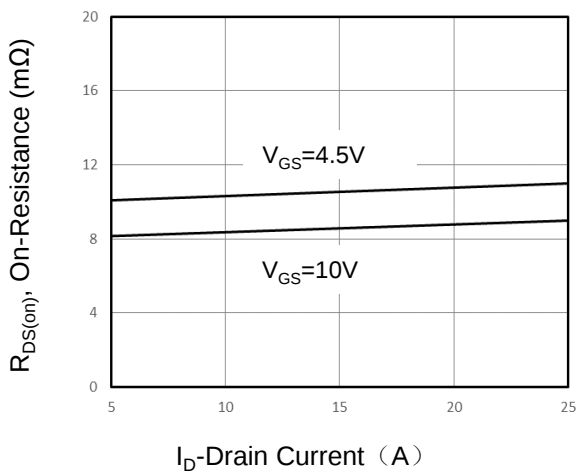


Figure 4. Gate Charge

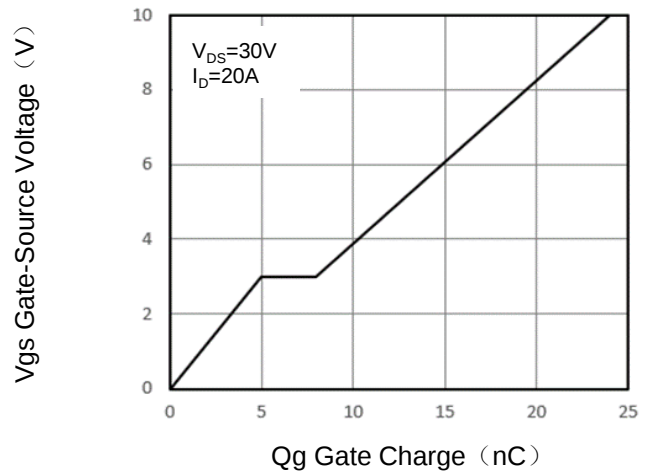


Figure 5. Capacitance vs V_{ds}

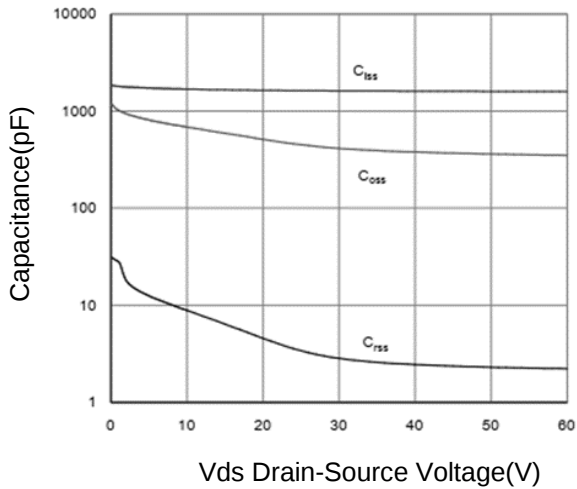
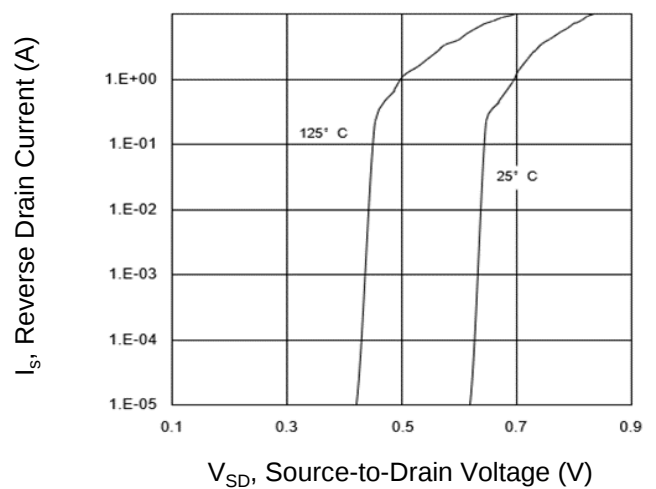


Figure 6. Source-Drain Diode Forward



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 7. Drain-Source On-Resistance

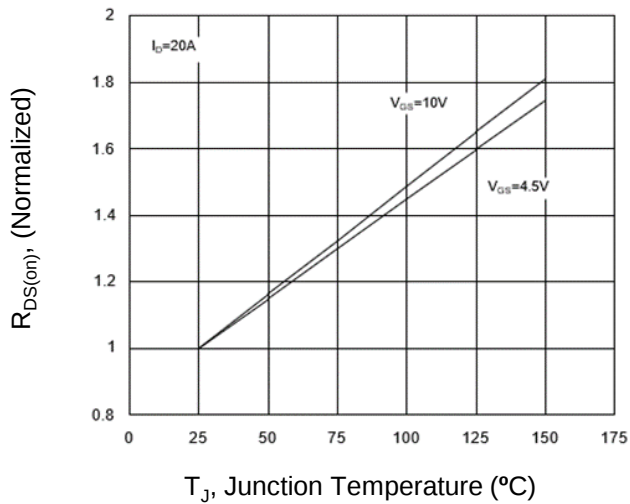


Figure 8. Safe Operation Area

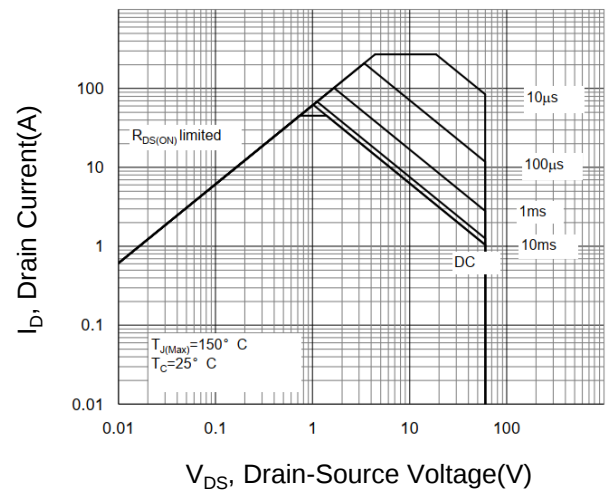
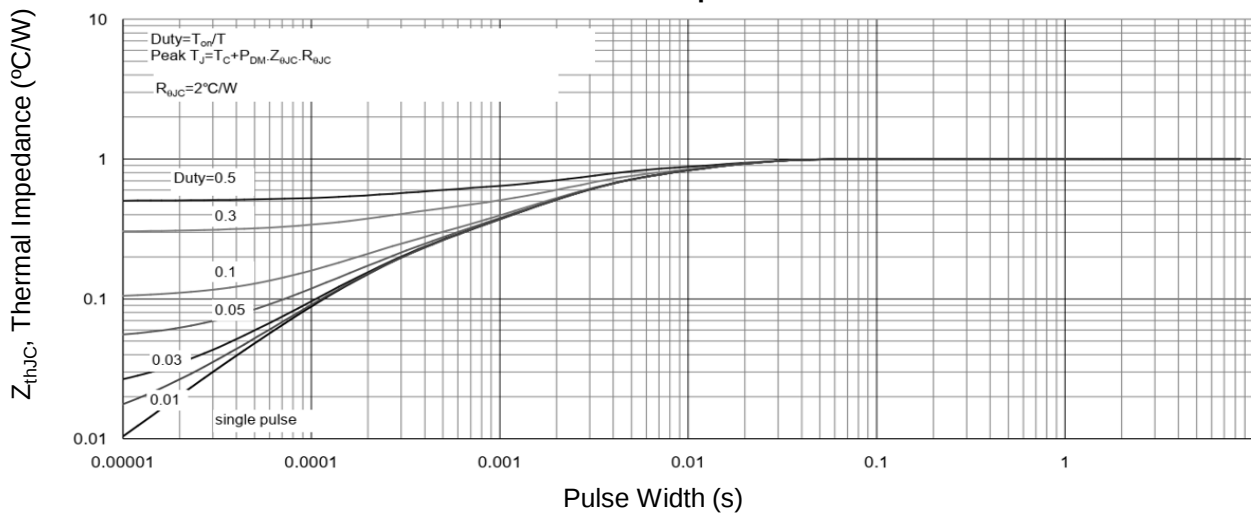
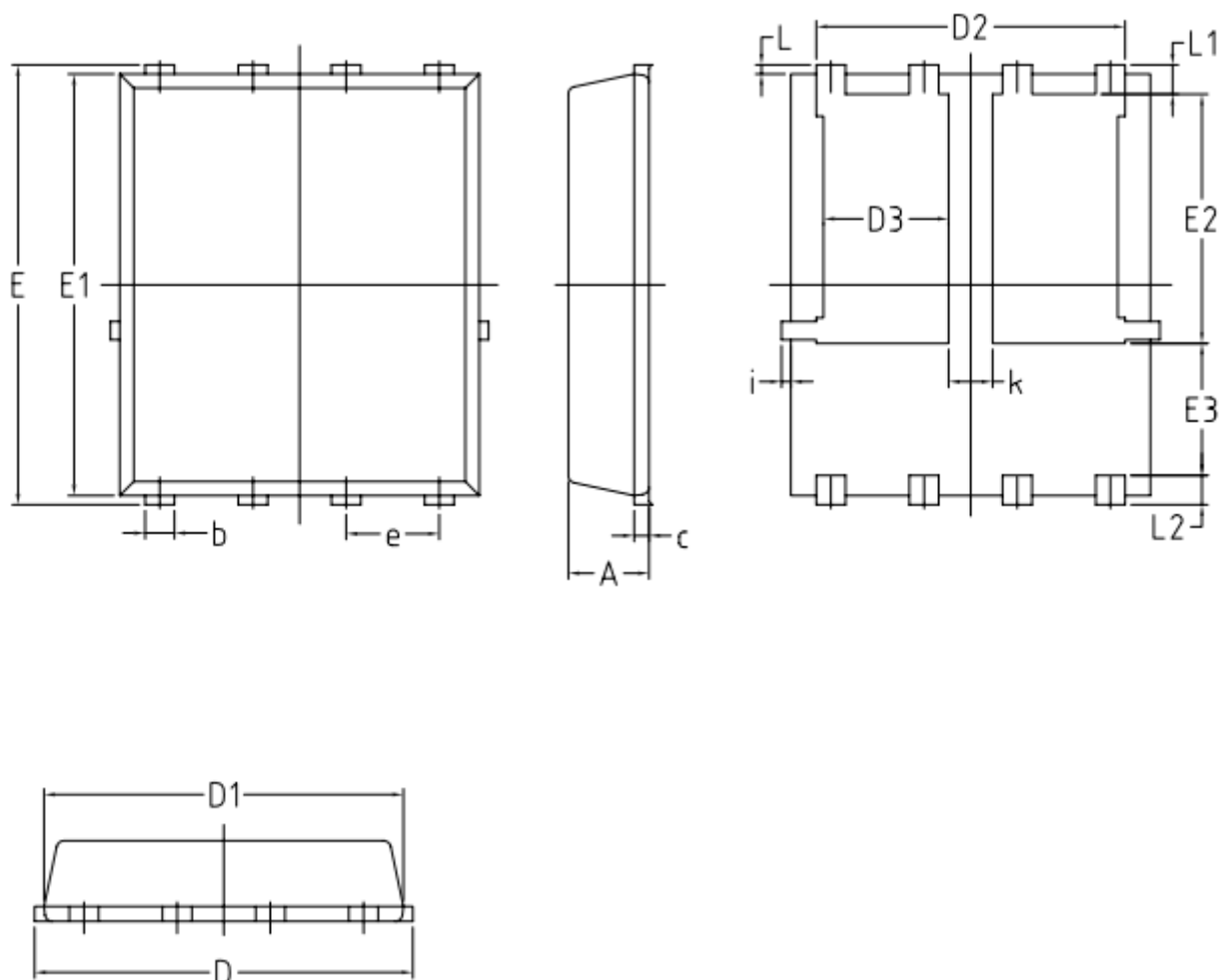


Figure 9. Normalized Maximum Transient Thermal Impedance



DFN5*6-8L Package



SYMBOL	COMMON			
	MM		INCH	
	MIN.	MAX.	MIN.	MAX.
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.203 BSC		0.0080 BSC	
D	4.80	5.40	0.1890	0.2126
D1	4.80	5.00	0.1890	0.1969
D2	4.11	4.31	0.1620	0.1700
D3	1.60	1.80	0.0629	0.0708
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	3.30	3.50	0.1300	0.1378
E3	1.70	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0019	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
i	/	0.18	/	0.0070
k	0.5	0.7	0.0197	0.0276