P-Channel Enhancement Mode Power MOSFET

Description

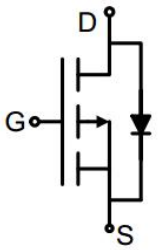
The G085P02TS uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.

General Features

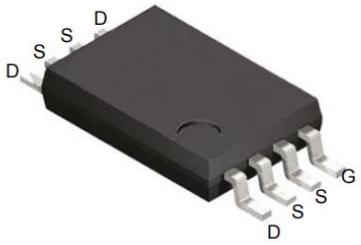
- V_{DS} -20V
- I_D (at V_{GS} = -10V) -8.2A
- $R_{DS(ON)}$ (at V_{GS} = -4.5V) < 8.5mΩ
- $R_{DS(ON)}$ (at V_{GS} = -2.5V) < 11mΩ
- $R_{DS(ON)}$ (at V_{GS} = -1.8V) < 14mΩ
- 100% Avalanche Tested
- RoHS Compliant

Application

- Power switch
- DC/DC converters



Schematic diagram



TSSOP-8

Ordering Information

Device	Package	Marking	Packaging
G085P02TS	TSSOP-8	G085P02	5000pcs/Reel

Absolute Maximum Ratings T_C = 25ºC, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Continuous Drain Current	I_D	-8.2	A
Pulsed Drain Current (note1)	I_{DM}	-32.8	A
Gate-Source Voltage	V_{GS}	±8	V
Power Dissipation	P_D	1.05	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	ºC

Thermal Resistance

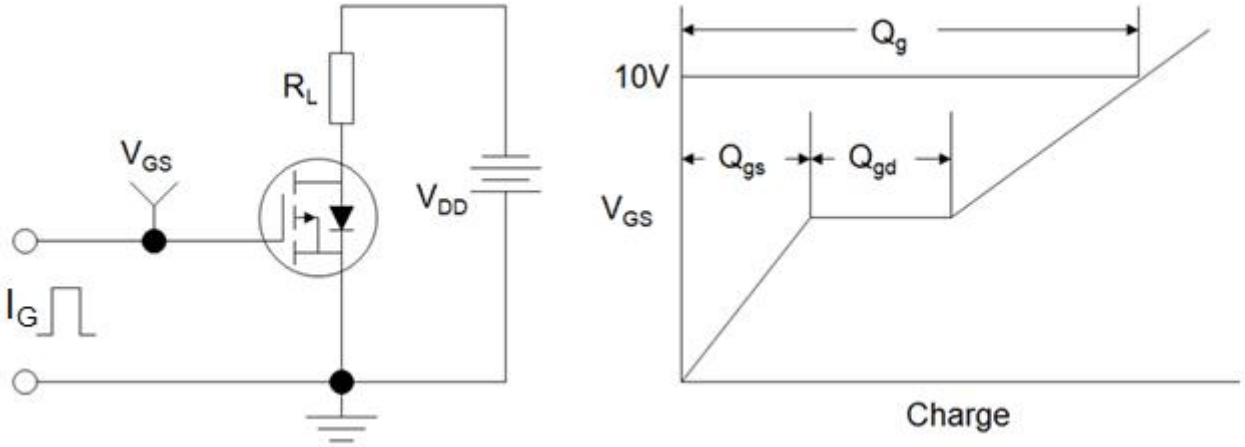
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R_{thJA}	119	ºC/W

Specifications T_J = 25ºC, 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	-20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -20V, V_{GS} = 0V	--	--	-1	μA
Gate-Source Leakage	I_{GSS}	V_{GS} = ±8V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-0.55	--	-0.9	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -4.2A	--	7.0	8.5	mΩ
		V_{GS} = -2.5V, I_D = -3.2A	--	8.0	11	
		V_{GS} = -1.8V, I_D = -2.2A	--	10	14	
Forward Transconductance	g_{FS}	V_{DS} = -5V,I_D = -4.1A	6	--	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -10V, f = 1.0MHz	--	1255	--	pF
Output Capacitance	C_{oss}		--	220	--	
Reverse Transfer Capacitance	C_{rss}		--	190	--	
Total Gate Charge	Q_g	V_{DD} = -10V, I_D = -8A, V_{GS} = -10V	--	29	--	nC
Gate-Source Charge	Q_{gs}		--	5.2	--	
Gate-Drain Charge	Q_{gd}		--	6.3	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -10V, I_D = -3.3A, R_G = 1Ω	--	230	--	ns
Turn-on Rise Time	t_r		--	800	--	
Turn-off Delay Time	$t_{d(off)}$		--	3000	--	
Turn-off Fall Time	t_f		--	2000	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25ºC	--	--	-8.2	A
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = -8.2A, V_{GS} = 0V	--	--	-1.2	V

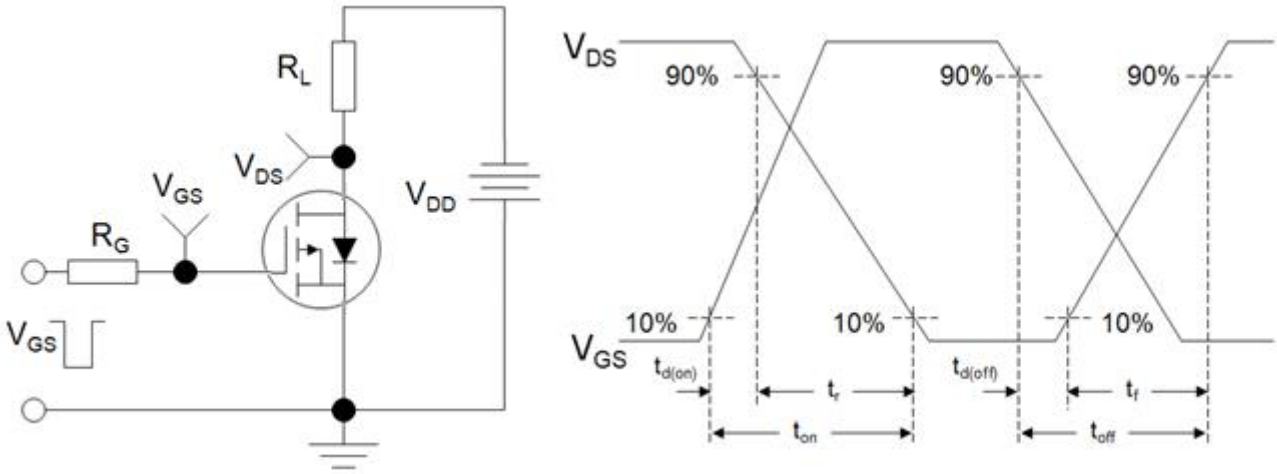
Notes

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

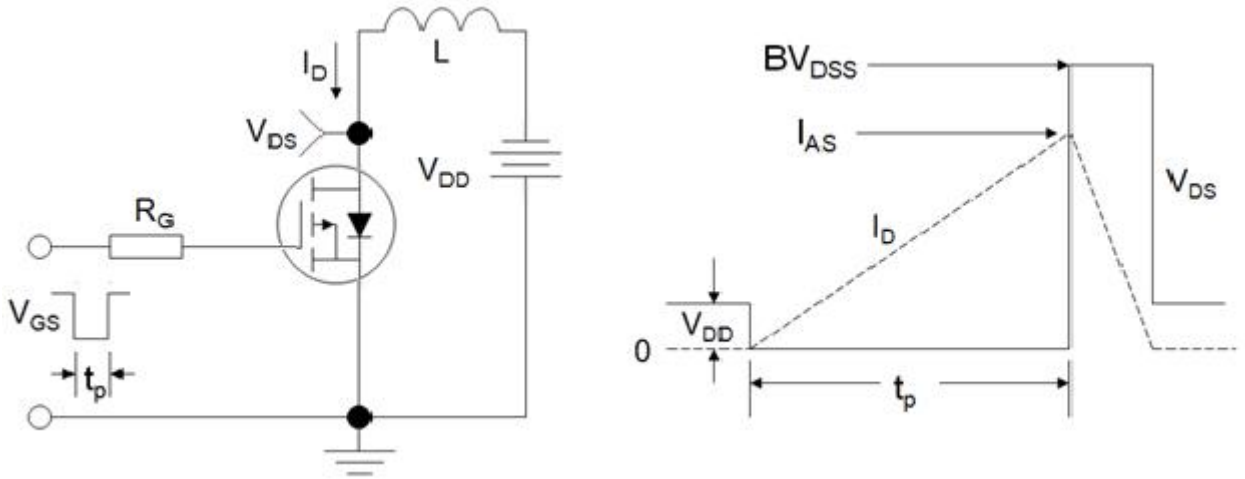
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics

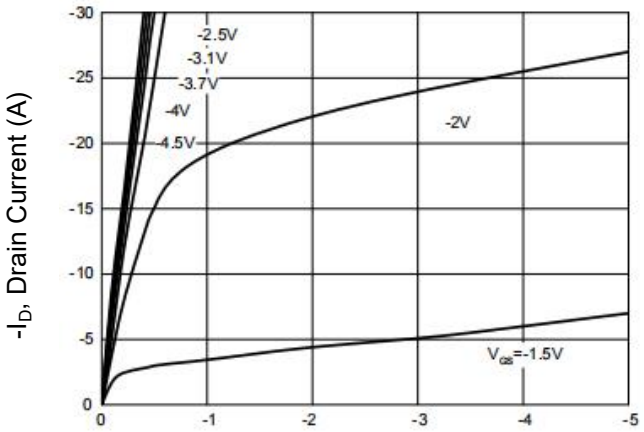


Figure 2. Transfer Characteristics

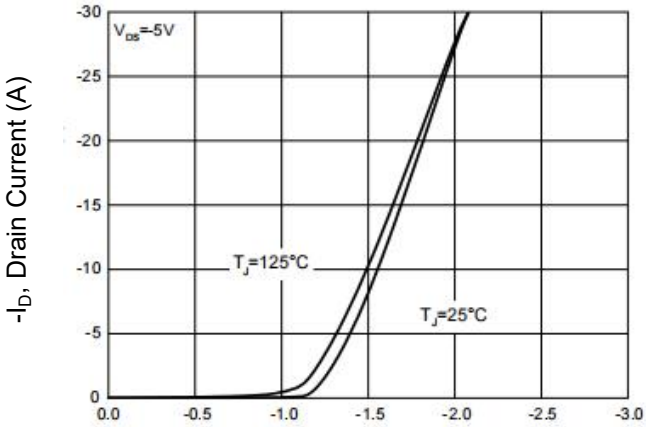


Figure 3.Drain Source On Resistance

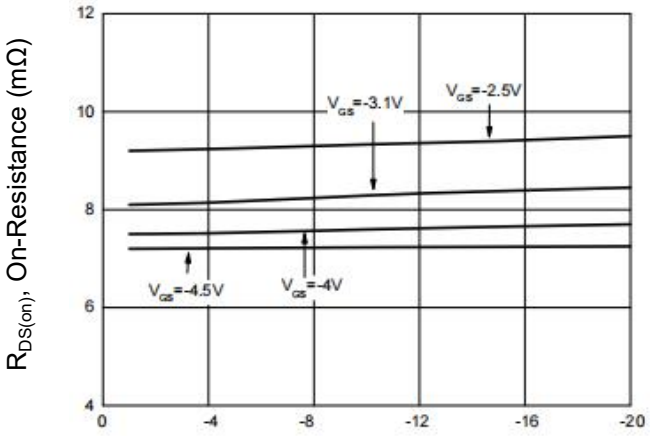


Figure 4. Gate Charge

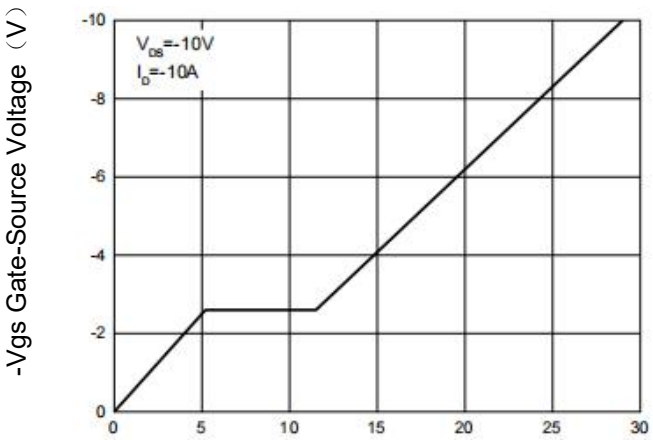


Figure 5. Capacitance

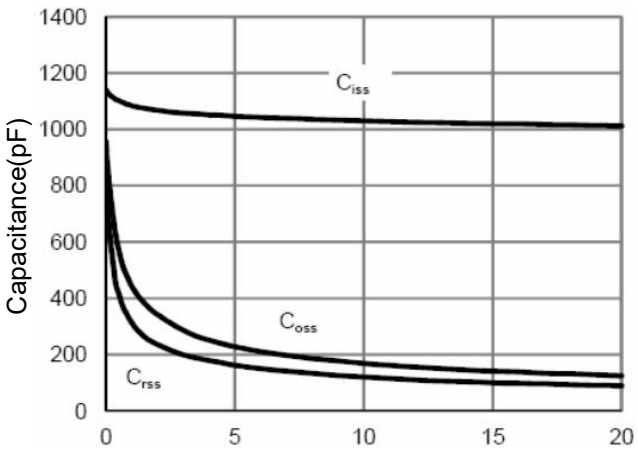
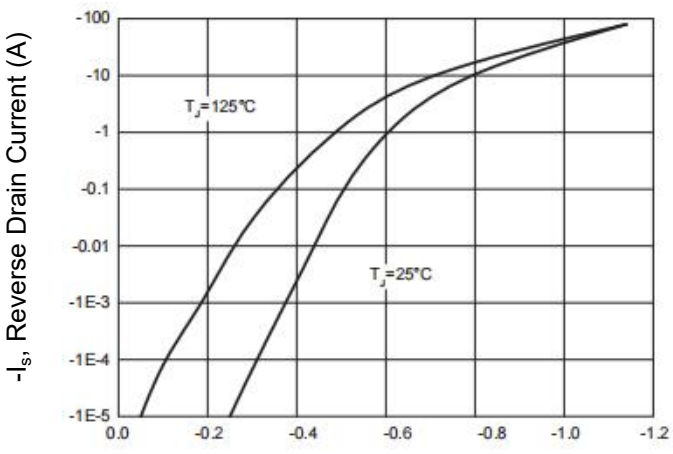


Figure 6. Source-Drain Diode Forward



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 7. Drain-Source On-Resistance

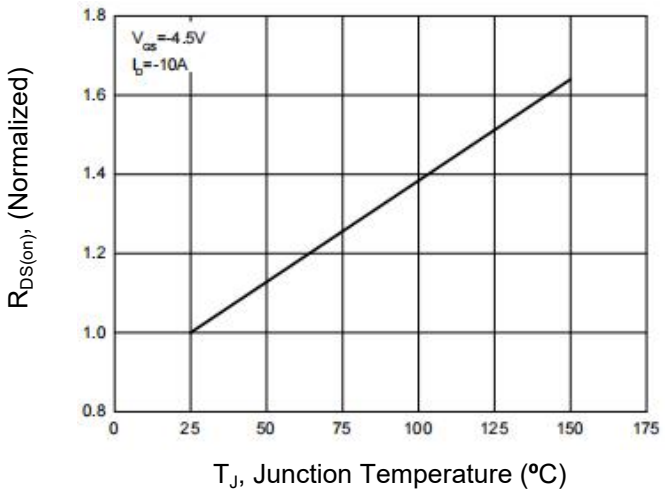


Figure 10. Safe Operation Area

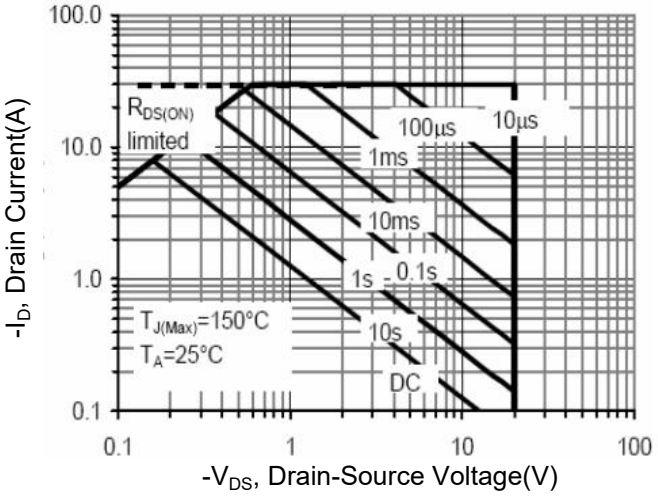
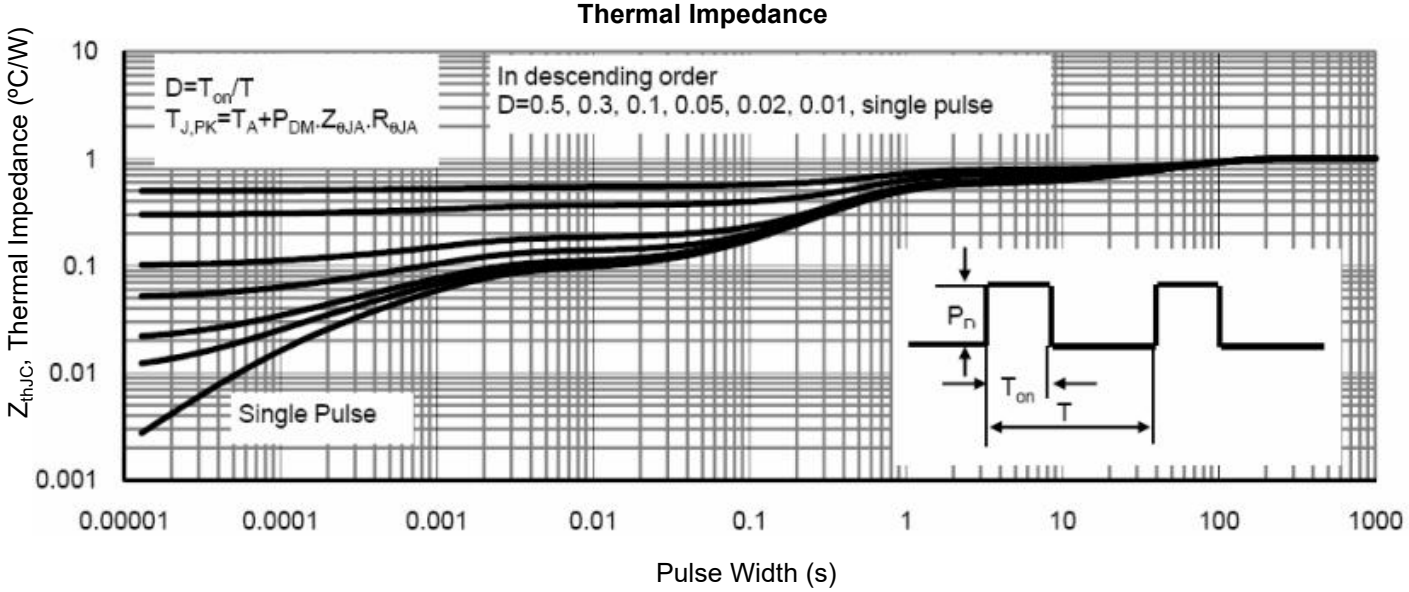
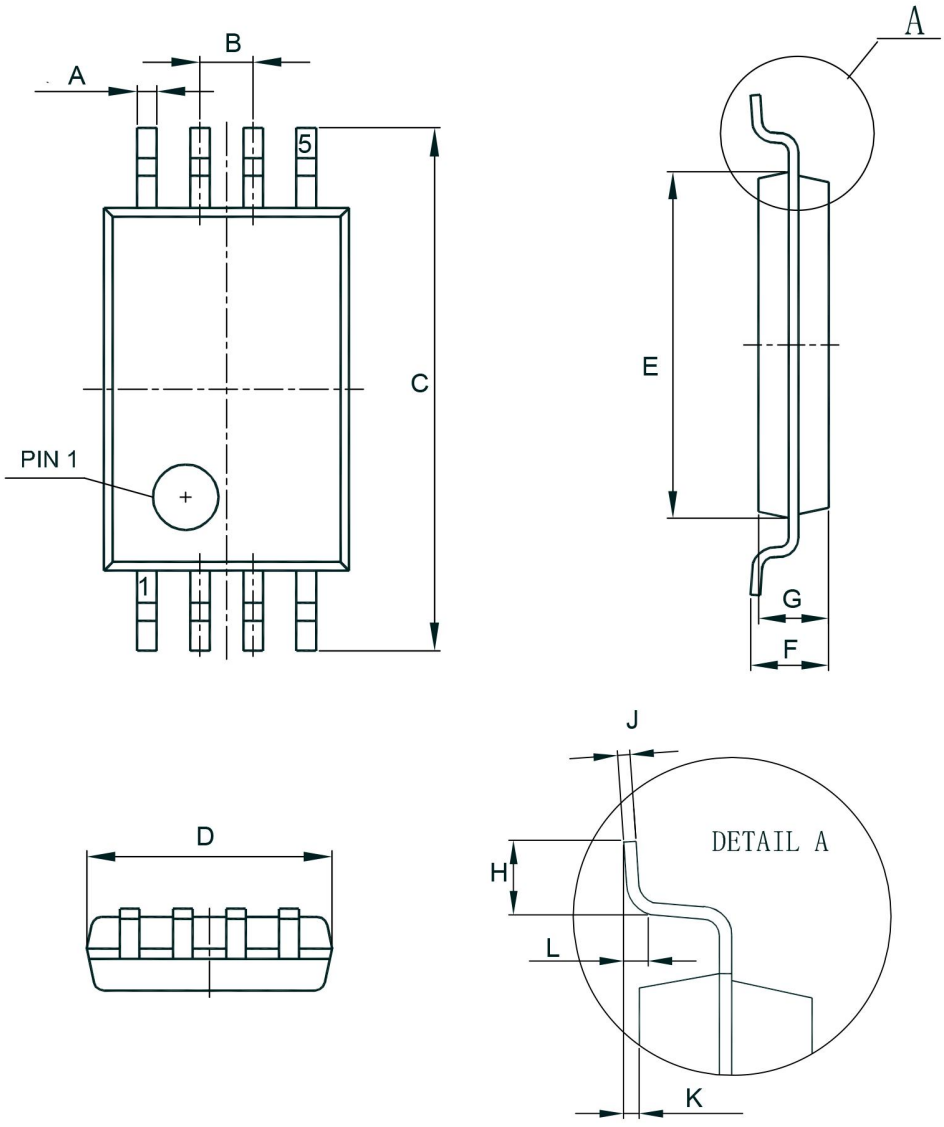


Figure 9. Normalized Maximum Transient Thermal Impedance



TSSOP-8 Package Information



Dimensions					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.007	.011	0.170	0.270	
B	0.026BSC.		0.650BSC.		
C	0.244	0.260	6.200	6.600	
D	0.112	0.120	2.850	3.050	
E	0.169	0.177	4.300	4.500	
F	0.039	0.047	1.000	1.200	
G	0.035	0.043	0.900	1.100	
H	0.016	0.031	0.400	0.800	
J	0.003	0.008	0.077	0.200	
K	0.001	0.007	0.020	0.180	
L	0.010TYP.		0.250TYP.		