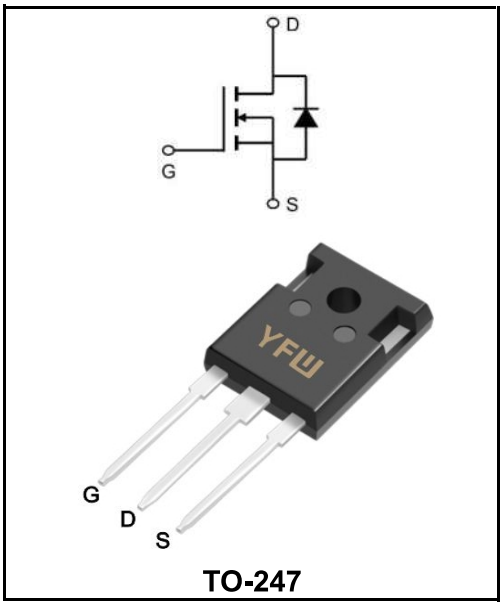
80V N-Channel SGT Power MOSFET

MAIN CHARACTERISTICS

I_D	200A
V_{DSS}	80V
R_{DSON}-typ(@V_{GS}=10V)	＜3.4mΩ(Typ:2.7 mΩ)



TO-247

FEATURES

- Ultra-Low RDS(ON)
- Low Gate Charge
- High Current Capability

Application

- **YFW-SGT technology**
- Power Management in Telecom.,Industrial Automa
- Motor Driving in Power Tool,E-vehicle,Robotics
- Current Switching in DC/DC&AC/DC(SR) Sub-sys

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	80	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous drain current	I_D	200	A
Pulsed Drain Current (Note1)	I_{DM}	800	A
Power dissipation	P_D	268	W
Single Pulse Avalanche Energy(Note1)	E_{AS}	700	mJ
Operation and storage temperature	T_{STG}, T_J	-55 to +150	°C
Thermal Resistance, Junction-case	$R_{\theta JC}$	0.47	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	34	°C/W

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	BV_{DSS}	80	-	-	V
Drain-Source Leakage Current	V_{DS}=80V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate-Source Leakage Current	V_{GS} = ± 20 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	V_{GS} = 10 V, I_D = 20 A	$R_{DS(ON)}$	-	2.7	3.4	mΩ
Input Capacitance	V_{GS}=0V V_{DS}=40V f=1MHz	C_{iss}	-	7000	-	pF
Output Capacitance		C_{oss}	-	3500	-	
Reverse Transfer Capacitance		C_{rss}	-	250	-	
Turn-on delay time(Note2)	V_{DS}=39V V_{GS}=10V R_G=6.2Ω I_D=20A	$t_{d(on)}$	-	31	-	ns
Rise Time(Note2)		T_r	-	35	-	
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	61	-	
Fall Time(Note2)		t_f	-	31	-	
Total Gate Charge(Note2)	I_D=20A V_{DS}=40V V_{GS}=10V	Q_g	-	91	-	nC
Gate-Source Charge(Note2)		Q_{gs}	-	33	-	
Gate-Drain Charge(Note2)		Q_{gd}	-	18	-	
Diode forward current		I_S	-	-	200	A
Maximum Pulsed Body Diode Forward Current		I_{SM}			800	A
Diode Forward Voltage	V_{GS}=0V , I_S=20A ,T_J=25℃	V_{SD}	-	-	1.2	V
Reverse Recovery Time(Note2)	I_F= 20A, di / dt = 100 A/μs	t_{rr}	-	75	-	ns
Reverse Recovery Charge(Note2)		Q_{rr}	-	155	-	nC

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

Figure 1: Power De-rating

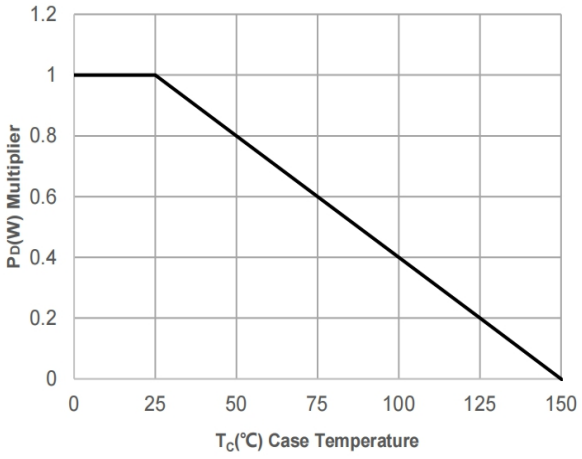


Figure 2: Current De-rating

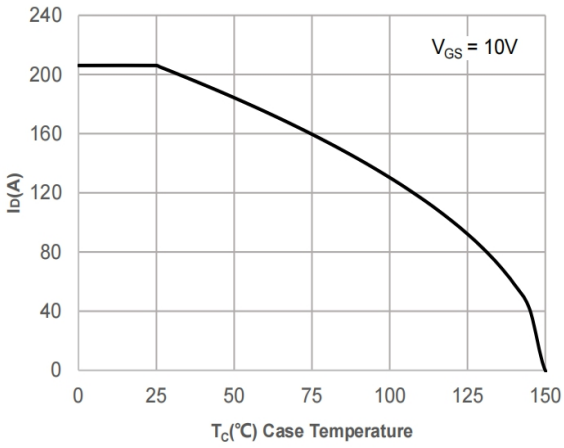


Figure 3: Normalized Maximum Transient Thermal Impedance

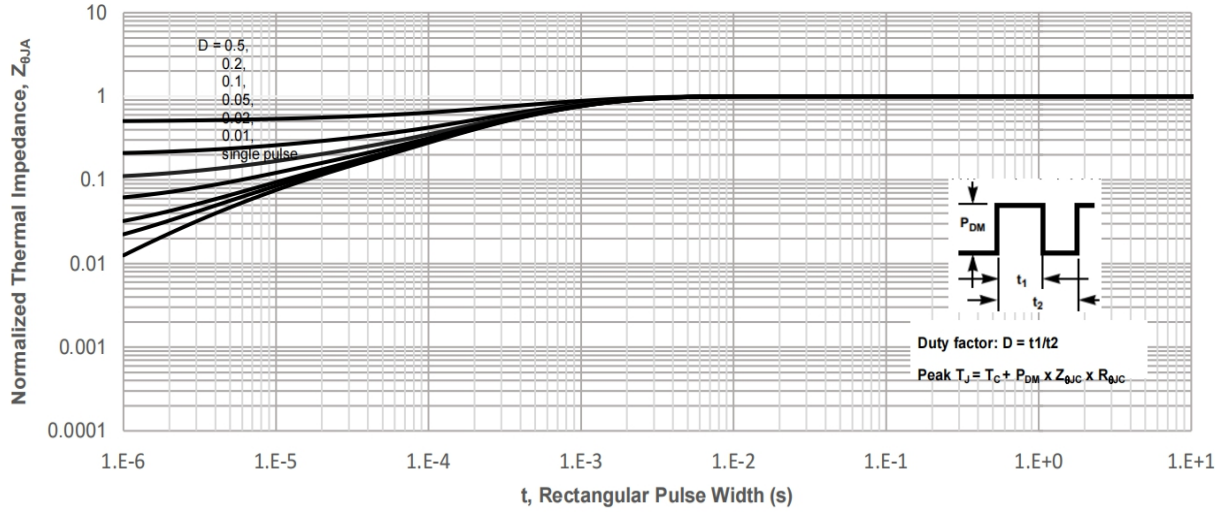
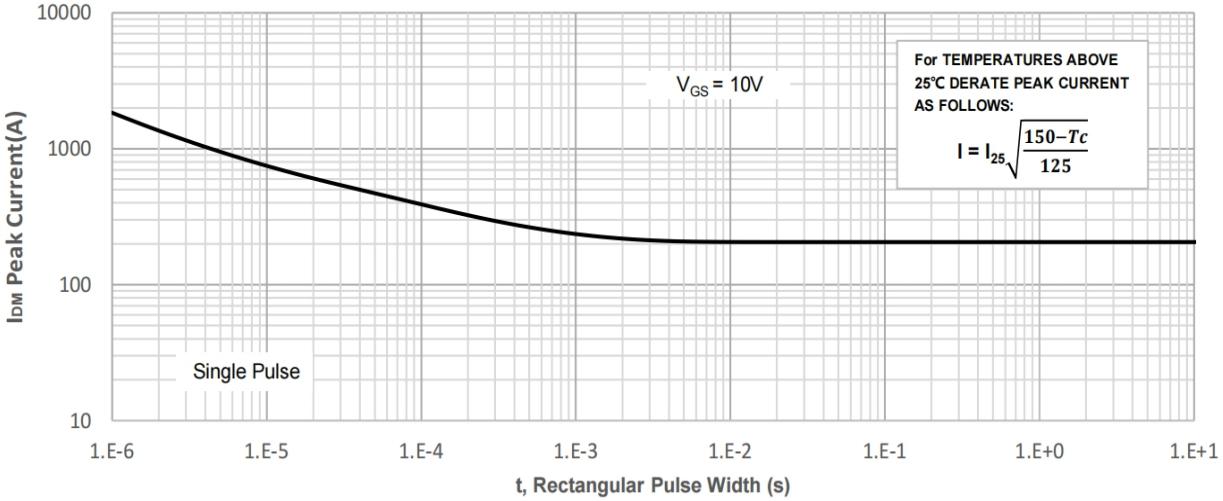


Figure 4: Peak Current Capacity



RATINGS AND CHARACTERISTIC CURVES

Figure 5: Output Characteristics

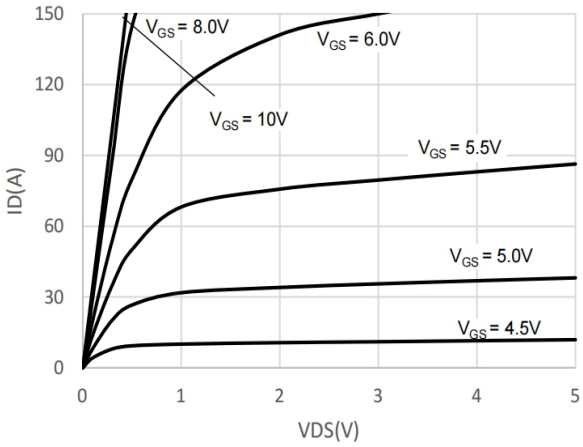


Figure 6: Typical Transfer Characteristics

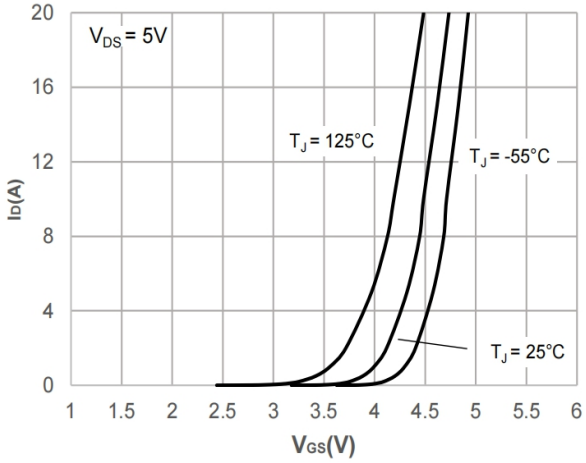


Figure 7: On-resistance vs. Drain Current

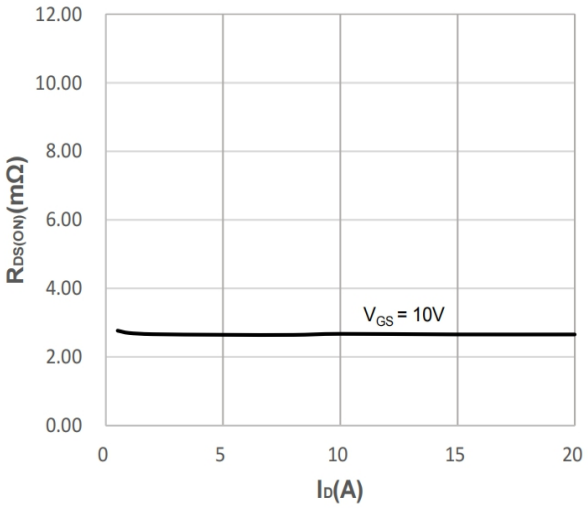


Figure 8: Body Diode Characteristics

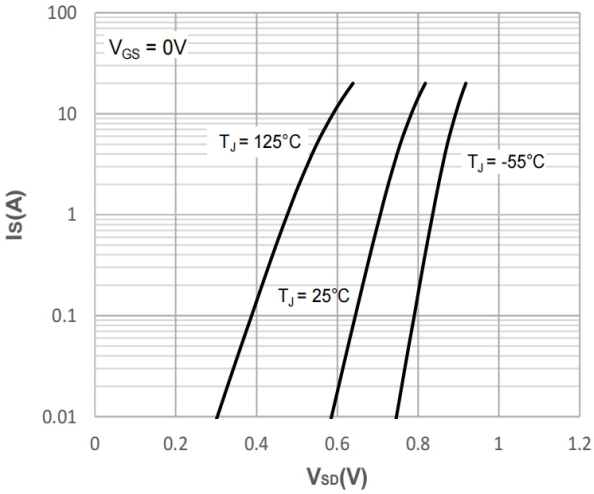


Figure 9: Gate Charge Characteristics

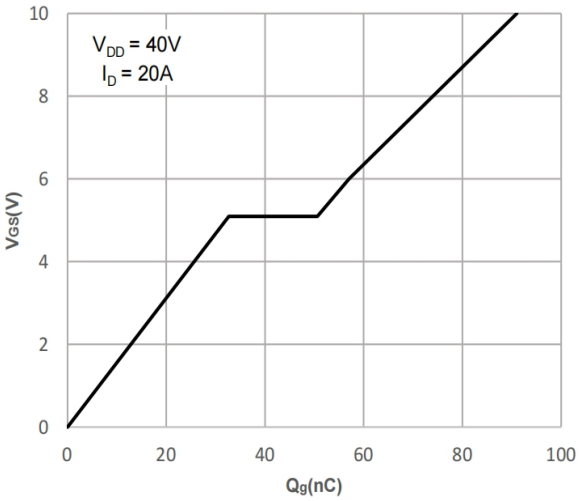
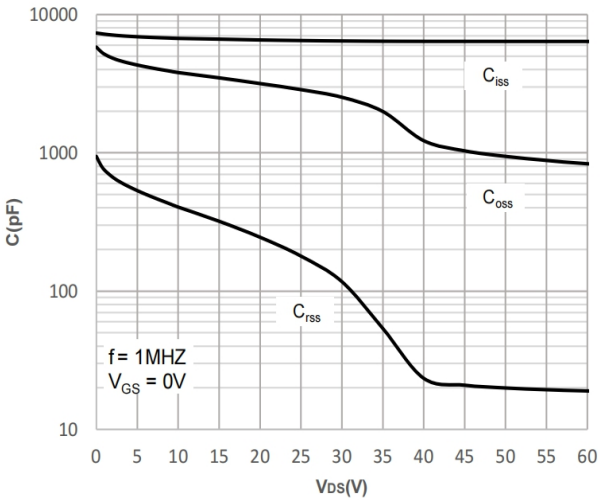


Figure 10: Capacitance Characteristics



RATINGS AND CHARACTERISTIC CURVES

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

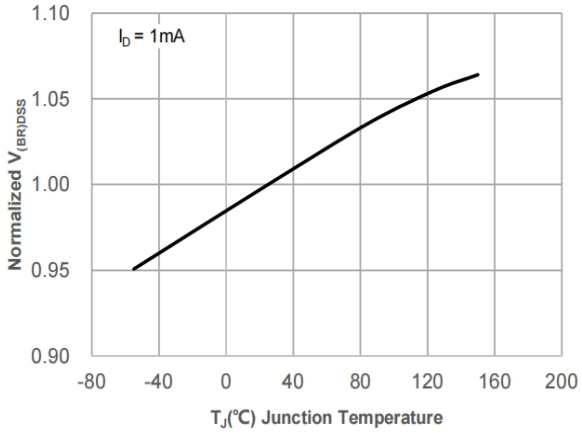


Figure 12: Normalized on Resistance vs. Junction Temperature

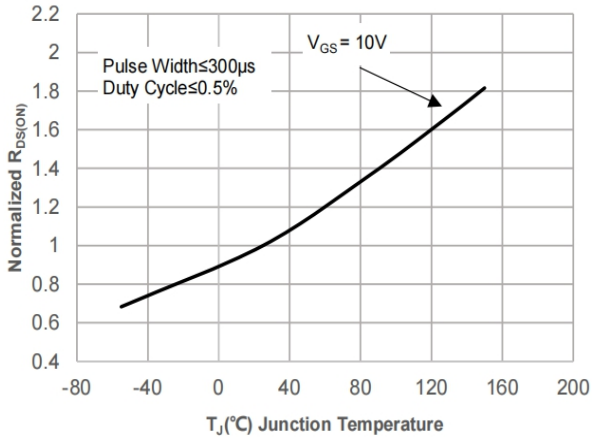


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

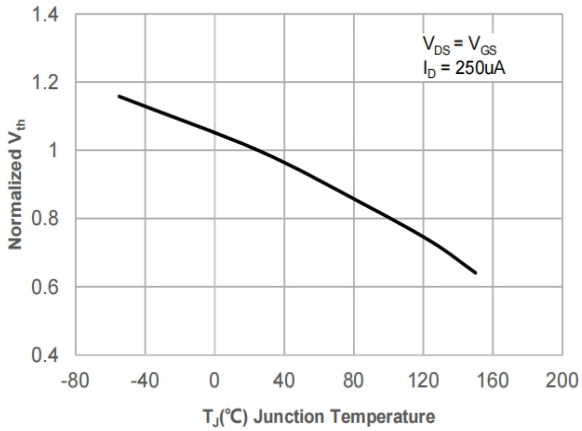


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

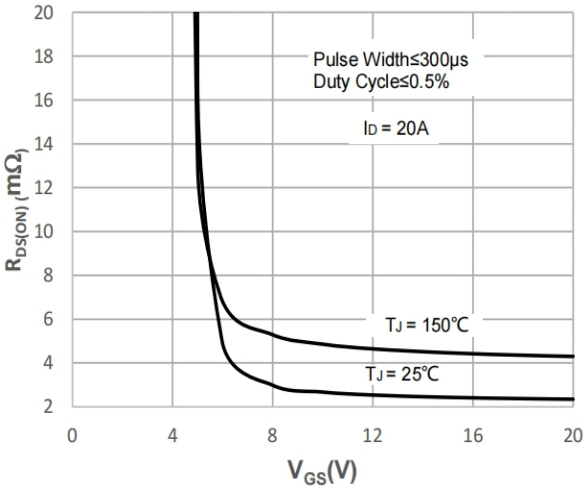
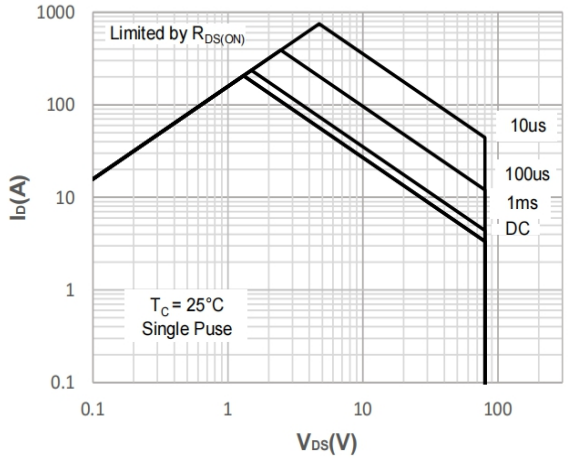
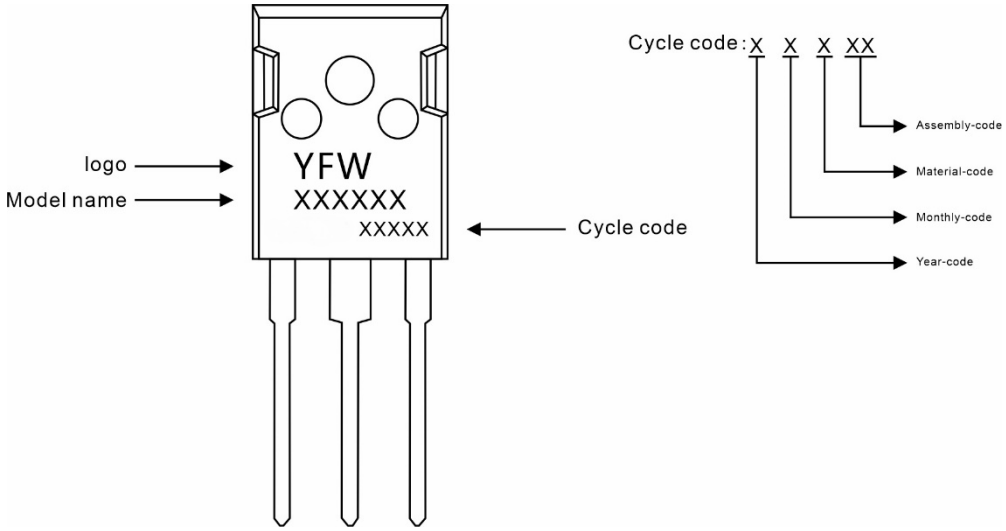


Figure 15: Maximum Safe Operating Area



Marking Diagram

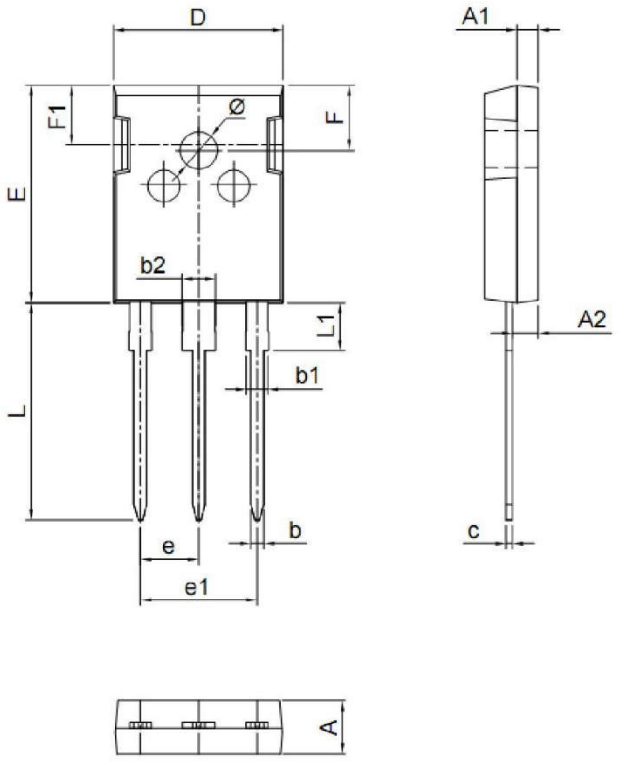


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWG200N08AP	TO-247	0.209oz(5.93g)	30pcs/tube	600PCS/Box 2400PCS/Carton

Package Dimensions

TO-247



Symbol	Dimensions in mm		Dimensions in Inch	
	Min.	Max.	Min.	Max.
A	4.90	5.10	0.193	0.201
A1	1.90	2.10	0.075	0.083
A2	2.29	2.54	0.090	0.100
b	1.00	1.40	0.039	0.055
b1	2.00	2.20	0.079	0.087
b2	3.00	3.20	0.118	0.126
c	0.50	0.70	0.020	0.028
D	15.75	16.05	0.620	0.632
E	20.20	20.80	0.795	0.819
e	5.45 (BSC)		0.215 (BSC)	
e1	10.90 (BSC)		0.429 (BSC)	
F	6.05	6.25	0.238	0.246
F1	5.80	6.00	0.228	0.236
L	20.10	20.40	0.791	0.803
L1	4.05	4.35	0.159	0.171
Φ	3.50	3.70	0.138	0.146

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