

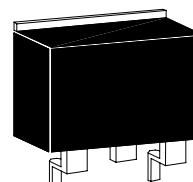
N-Channel Enhancement Mode Power MOSFET

Features:

- Low Gate Charge
- Simple Drive Requirement
- Repetitive Avalanche Rated
- Fast Switching Characteristic
- Pb-free lead plating and RoHS compliant package

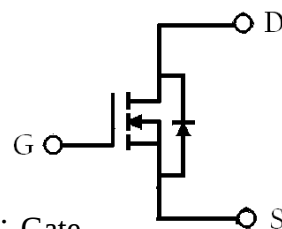
BV_{DSS}	150V
$I_D@V_{GS}=10V, T_C=25^{\circ}C$	90A
$R_{DS(ON)}@V_{GS}=10V, I_D=30A$	16m Ω (typ)

TO-263



G D S

Symbol



G : Gate
D : Drain
S : Source

Ordering Information

Device	Package	Shipping
KWE015N15RF3	TO-263 (Pb-free lead plating and RoHS compliant package)	800 pcs / Tape & Reel

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

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	150	V
Gate-Source Voltage	V _{GS}	±30	
Continuous Drain Current @ V _{GS} =10V, T _c =25°C	I _D	90	A
Continuous Drain Current @ V _{GS} =10V, T _c =125°C		52	
Pulsed Drain Current (Note 1)	I _{DM}	260	
Avalanche Current @ L=0.1mH	I _{AS}	85	
Avalanche Energy @ L=5mH, I _D =20A, V _{DD} =50V (Note 2)	E _{AS}	1000	mJ
Repetitive Avalanche Energy @ L=0.05mH	E _{AR}	37.5	
Total Power Dissipation (T _c =25°C)	P _D	375	W
Total Power Dissipation (T _c =100°C)		187	
Total Power Dissipation (T _A =25°C)		2.4	
Total Power Dissipation (T _A =100°C)		1.2	
Operating Junction and Storage Temperature	T _j , T _{stg}	-55~+175	°C

Note : 1. Pulse width limited by maximum junction temperature
2. 100% tested by conditions of L=0.1mH, I_{AS}=30A, V_{GS}=10V, V_{DD}=50V

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	R _{θJC}	0.4	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{θJA}	62.5	

Characteristics (T_c=25°C, unless otherwise specified)

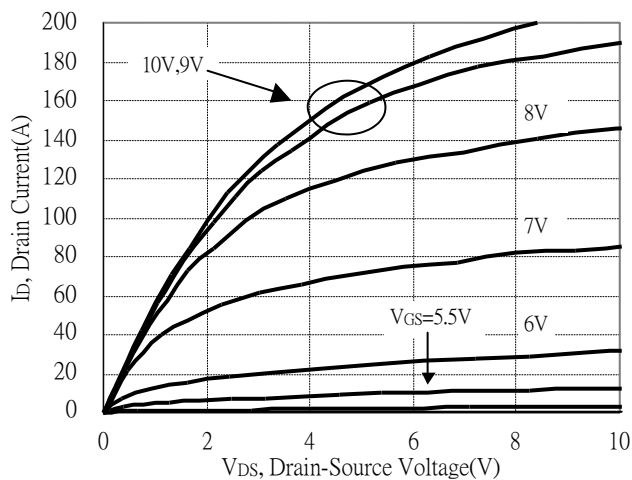
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	150	-	-	V	V _{GS} =0V, I _D =250μA
ΔBV _{DSS} /ΔT _j	-	0.1	-	V/°C	Reference to 25°C, I _D =250μA
V _{GS(th)}	2.0	-	4.0	V	V _{DS} = V _{GS} , I _D =250μA
G _{FS}	-	24	-	S	V _{DS} = 10V, I _D =20A
I _{GSS}	-	-	±100	nA	V _{GS} =±30V
I _{DSS}	-	-	1	μA	V _{DS} = 120V, V _{GS} = 0V
	-	-	25		V _{DS} = 100V, V _{GS} = 0V, T _j =125°C
*R _{DS(ON)}	-	16	20	mΩ	V _{GS} = 10V, I _D =30A
Dynamic					
*Q _g	-	68	-	nC	I _D =85A, V _{DS} =75V, V _{GS} =10V
*Q _{gs}	-	23.5	-		
*Q _{gd}	-	19.5	-		
*t _{d(ON)}	-	41.8	-	ns	V _{DS} =75V, I _D =85A, V _{GS} =10V, R _G =2.5Ω
*t _r	-	235.8	-		
*t _{d(OFF)}	-	128	-		
*t _f	-	140.8	-		

Ciss	-	3506	-	pF	V _{GS} =0V, V _{DS} =25V, f=1MHz
Coss	-	579	-		
Crss	-	61	-		
Rg	-	2.2	-	Ω	f=1MHz
Source-Drain Diode					
*I _S	-	-	90	A	
*I _{SM}	-	-	260		
*V _{SD}	-	0.86	1.2	V	I _S =30A, V _{GS} =0V
*trr	-	72	-	ns	I _F =30A, V _{GS} =0V, dI _F /dt=100A/μs
*Qrr	-	216	-	nC	

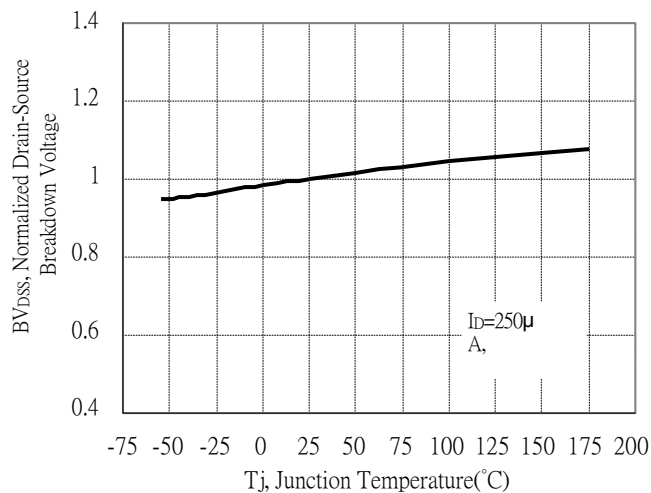
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

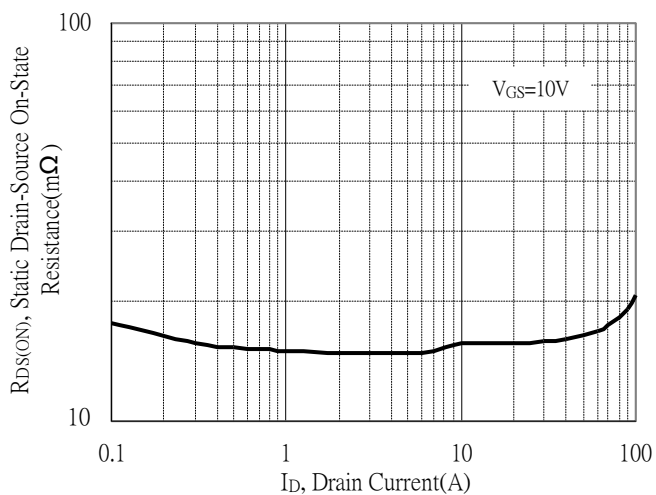
Typical Output Characteristics



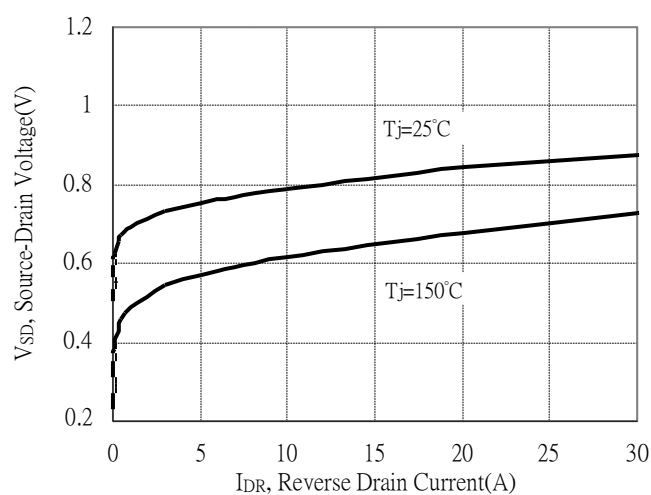
Breakdown Voltage vs Junction Temperature



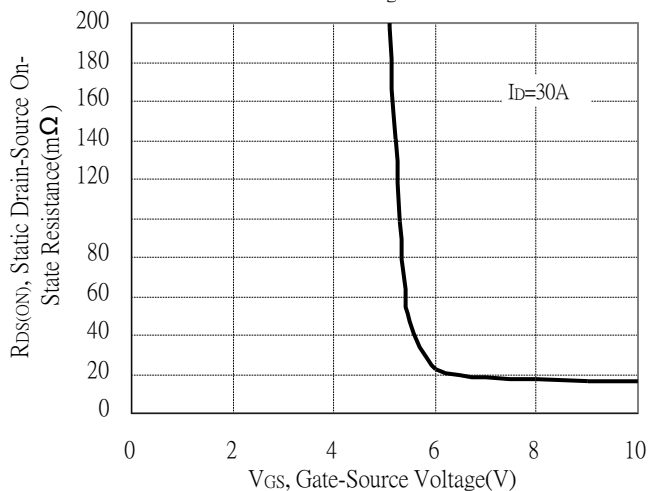
Static Drain-Source On-State resistance vs Drain Current



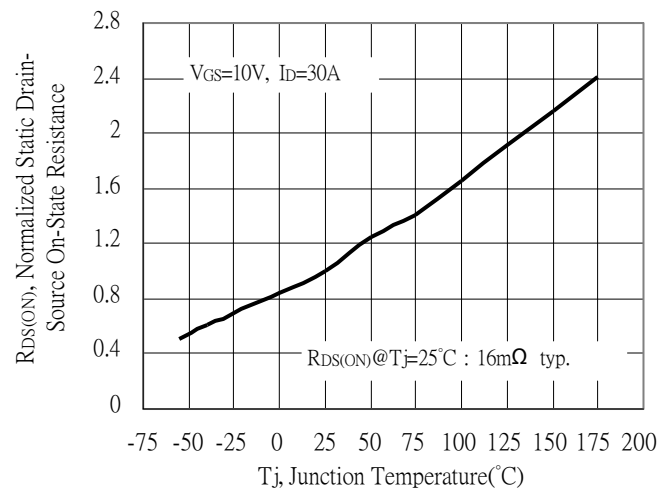
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

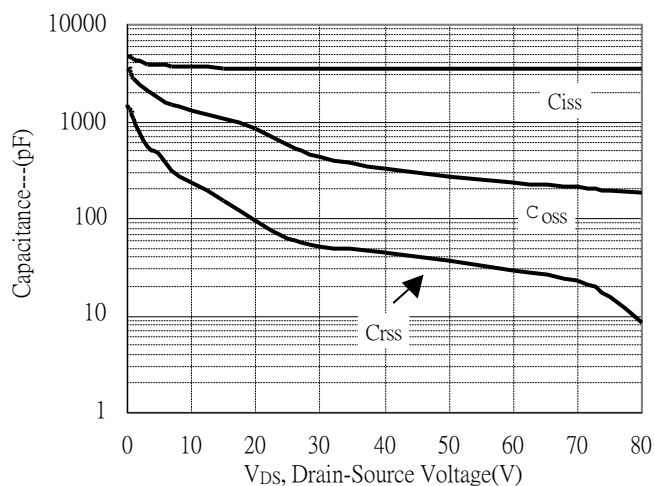


Drain-Source On-State Resistance vs Junction Temperature

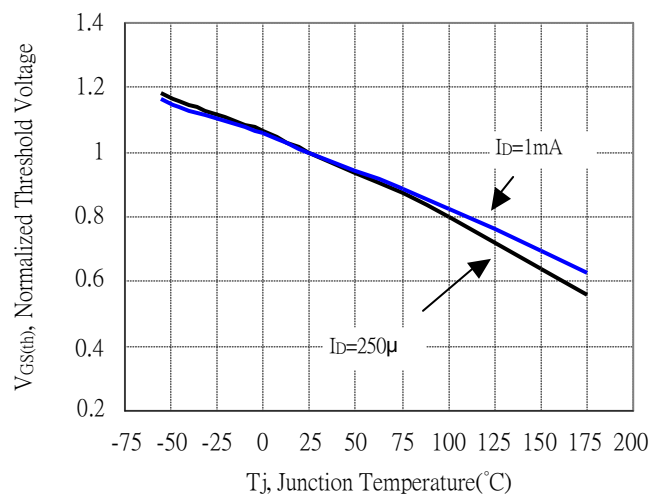


Typical Characteristics(Cont.)

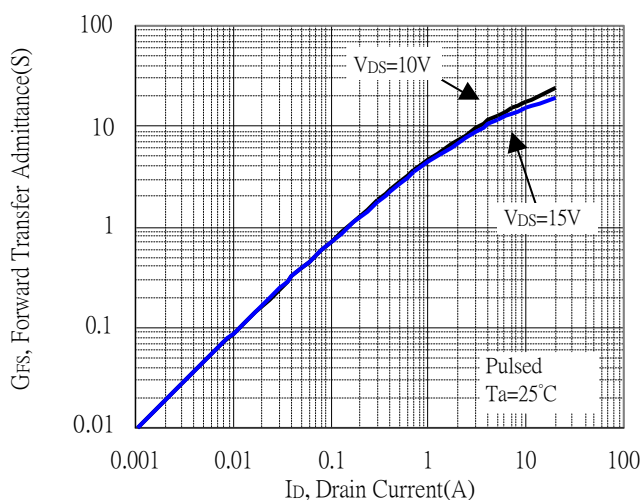
Capacitance vs Drain-to-Source Voltage



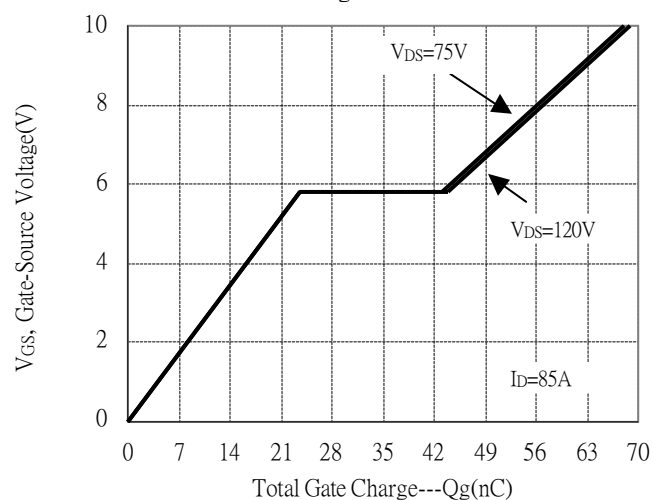
Threshold Voltage vs Junction Temperature



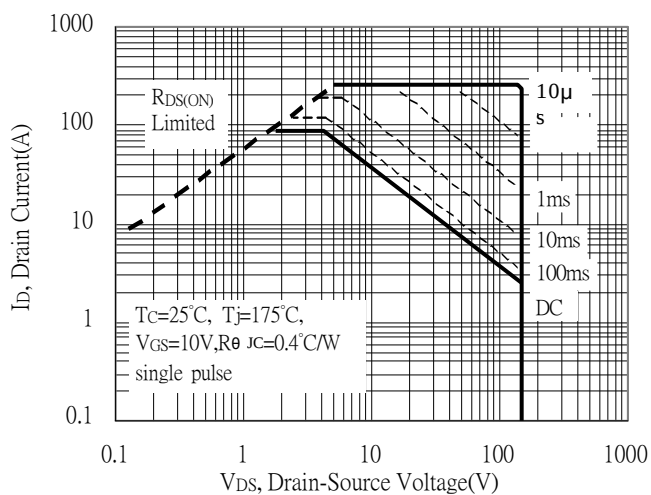
Forward Transfer Admittance vs Drain Current



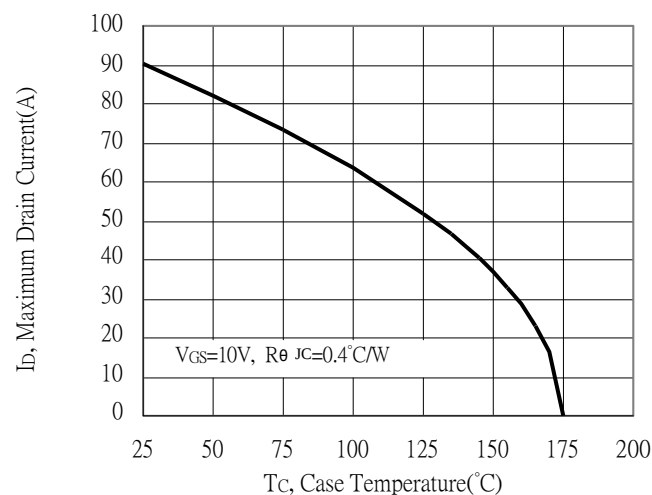
Gate Charge Characteristics



Maximum Safe Operating Area

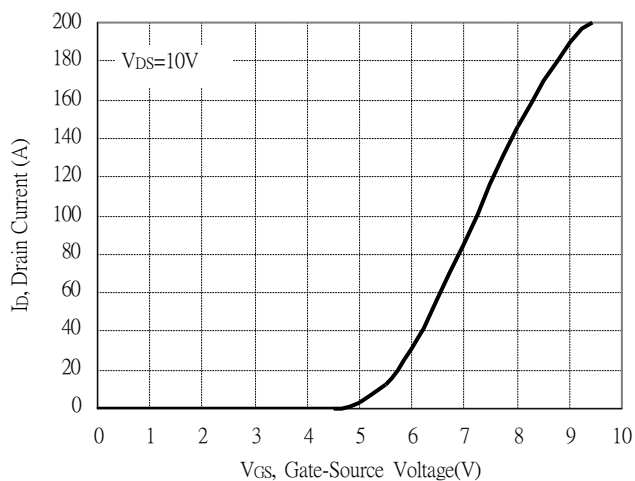


Maximum Drain Current vs Case Temperature

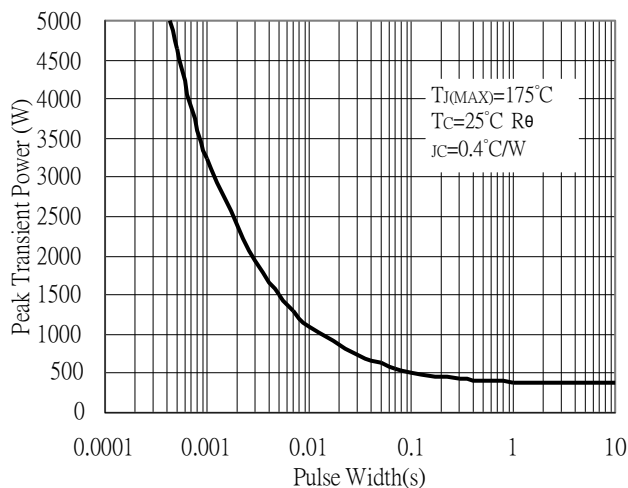


Typical Characteristics(Cont.)

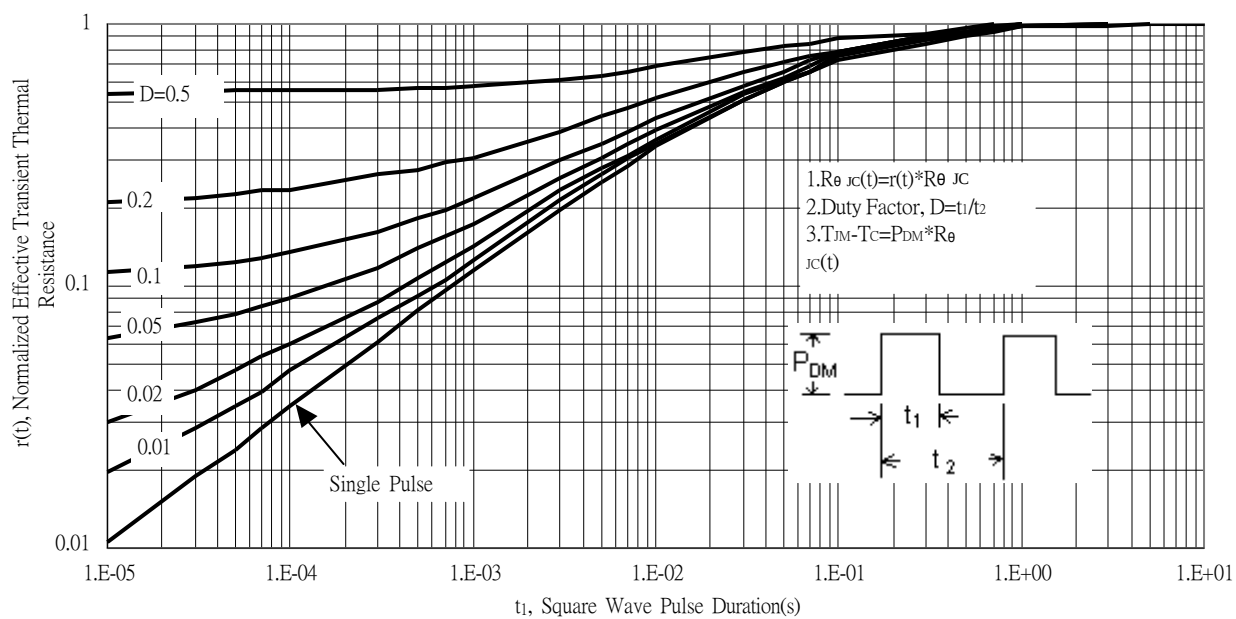
Typical Transfer Characteristics

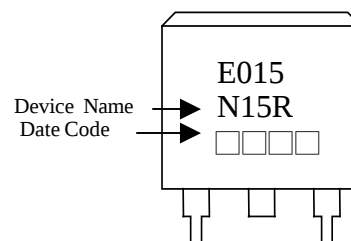
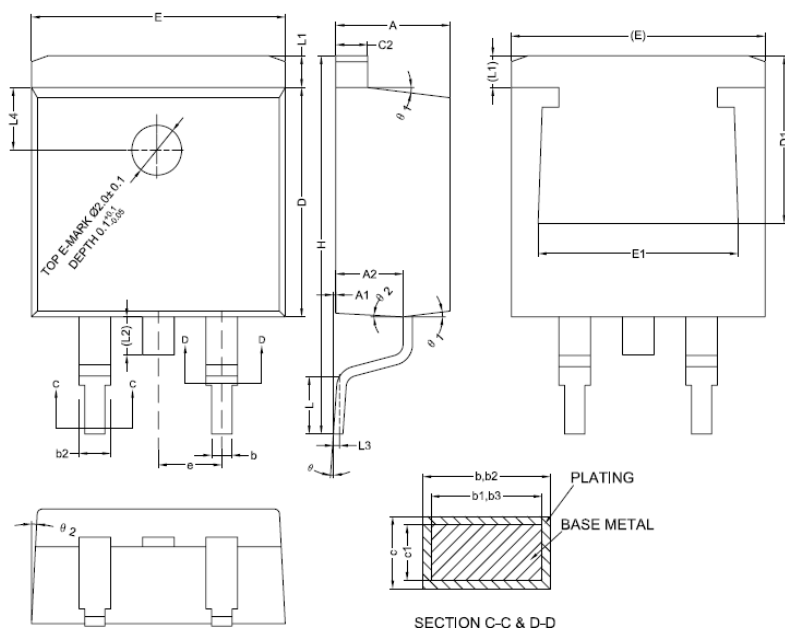


Single Pulse Maximum Power Dissipation



Transient Thermal Response Curves





3-Lead Plastic Surface Mounted Package
 Code : F3

Date Code : (From left to right)

First Code : Year code, the last digit of Christinr year. For example, 2014→4, 2015→, 2016→6, ..., etc.

Second Code : Month code, Jan→A, Feb→B, Mar→C, Apr→D, May→E, Jun→F, Jul→G, Aug→H, Sep→J,

Oct→K, Nov→L, Dec→M

Third and fourth codes : production serial number, 01~99

*: Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	4.40	4.70	0.173	0.185	E	10.06	10.26	0.396	0.404
A1	0.00	0.25	0.000	0.010	E1	7.80	8.20	0.307	0.323
A2	2.59	2.79	0.102	0.110	e	2.54 BSC		0.100 BSC	
b	0.77	0.90	0.030	0.035	H	14.70	15.50	0.579	0.610
b1	0.76	0.86	0.030	0.034	L	2.00	2.60	0.079	0.102
b2	1.23	1.36	0.048	0.054	L1	1.17	1.40	0.046	0.055
b3	1.22	1.32	0.048	0.052	L2	-	1.75	-	0.069
c	0.34	0.47	0.013	0.019	L3	0.25 BSC		0.010 BSC	
c1	0.33	0.43	0.013	0.017	L4	2.00 REF		0.079 BSC	
c2	1.22	1.32	0.048	0.052	θ	0°	8°	0°	8°
D	9.05	9.25	0.356	0.364	θ1	5°	9°	5°	9°
D1	6.60	-	0.260	-	θ2	1°	5°	1°	5°