

L2N7002KX4T5G

S-L2N7002KX4T5G

Small Signal MOSFET

1. FEATURES

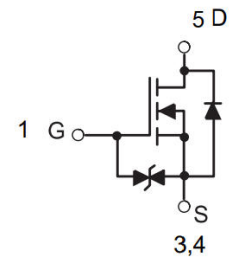
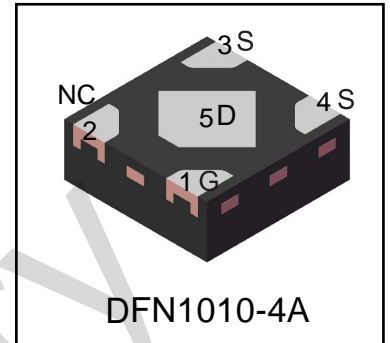
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.
- Gate-Source ESD Protected

2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
L2N7002KX4T5G	72K	10000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	VDSS	60	V
Gate-Source Voltage	VGS	±20	V
Drain Current			mA
TA = 25°C	ID	410	
TA = 85°C		300	
Pulsed Drain Current (tp=10µs)	IDM	1.5	A
Source Current (Body Diode)	IS	300	mA
Junction and Storage temperature	TJ,Tstg	-55~+150	°C



4. ELECTRICAL CHARACTERISTICS (Ta= 25°C)
OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = 250µA)	VBRDSS	60	-	-	V
Drain-to–Source Breakdown Voltage Temperature Coefficient	VBRDSS/TJ	-	71	-	mV/°C
Zero Gate Voltage Drain Current (VGS = 0, VDS = 60 V) TJ = 25°C	IDSS	-	-	1.0	µA
(VGS = 0, VDS = 50 V) TJ = 125°C		-	-	500	
Zero Gate Voltage Drain Current (VGS = 0, VDS = 50 V) TJ = 25°C		-	-	100	nA
Gate–Body Leakage Current, Forward (VGS = 20 V)	IGSSF	-	-	10	µA
Gate–Body Leakage Current, Reverse (VGS = - 20 V)	IGSSR	-	-	-10	µA

ON CHARACTERISTICS (Note 1)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Gate Threshold Voltage (VDS = VGS, ID = 250µA)	VGS(th)	1.0	-	2.5	V
Negative Threshold Temperature Coefficient	VGS(TH)/TJ	-	4	-	mV/°C
Static Drain–Source On–State Resistance (VGS = 10 V, ID = 500 mA)	RDS(on)	-	-	2.3	Ohm
(VGS = 5.0 V, ID = 50 mA)		-	-	2.7	
Forward Transconductance (VDS = 5.0 V, ID = 200 mA)	gfs	80	-	-	mS

DYNAMIC CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Total Gate Charge (VDS = 10V, VGS = 4.5V, ID = 0.5A)	Qg	-	360	-	pC
Gate–Source Charge (VDS = 10V, VGS = 4.5V, ID = 0.5A)	Qgs	-	90	-	
Gate–Drain Charge (VDS = 10V, VGS = 4.5V, ID = 0.5A)	Qgd	-	210	-	
Input Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Ciss	-	34	-	pF
Output Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Coss	-	3	-	pF
Reverse Transfer Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Crss	-	2.2	-	pF

SWITCHING CHARACTERISTICS

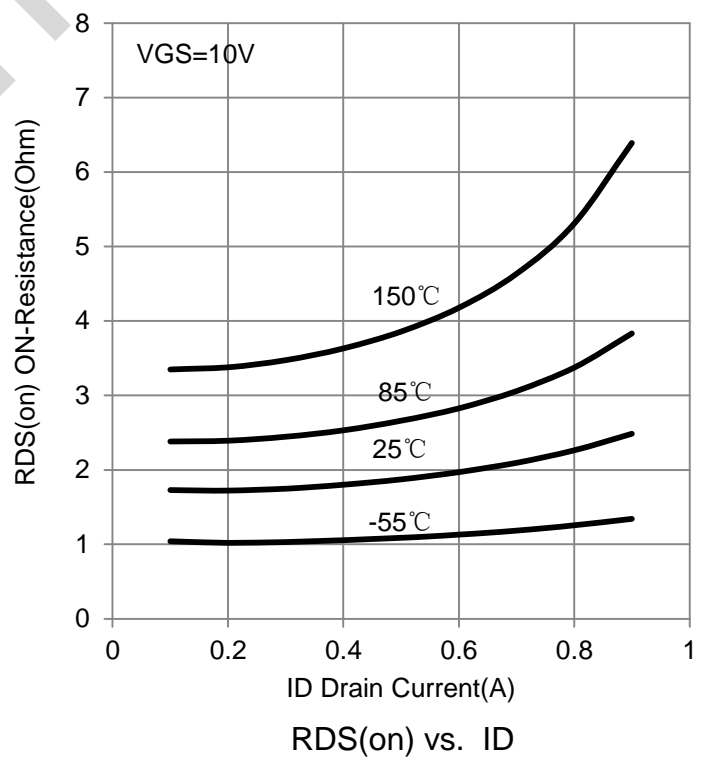
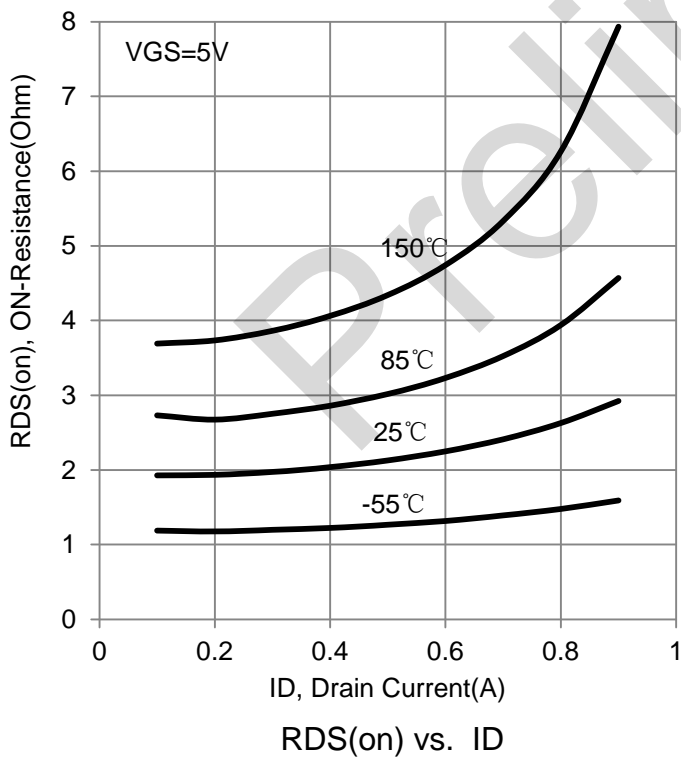
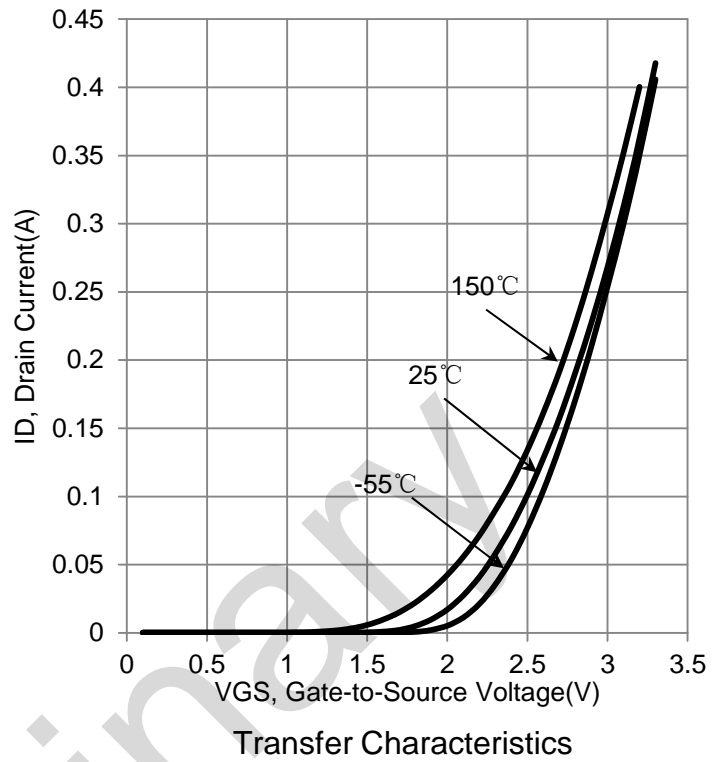
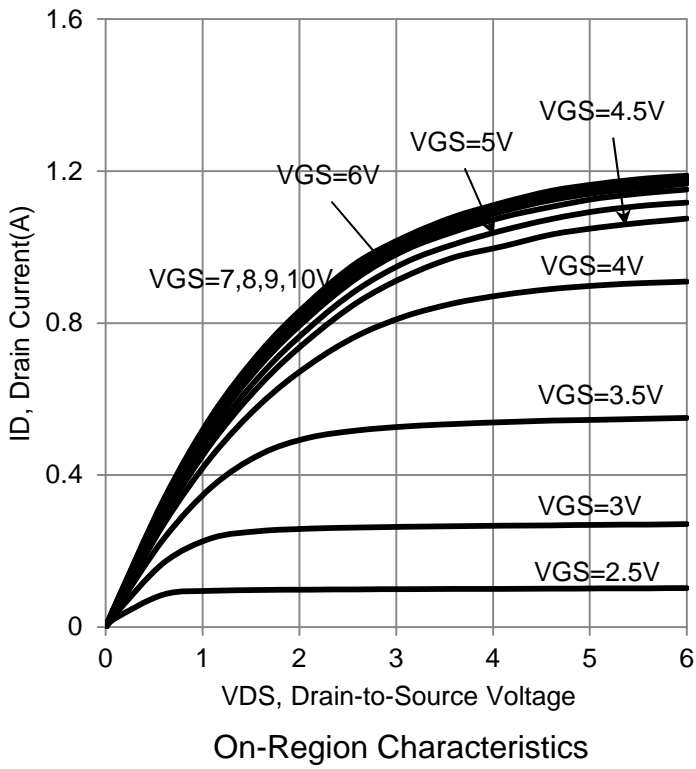
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Turn-On Delay Time	td(on)	-	3.8	-	ns
Rise Time	tr	-	3.4	-	
Turn-Off Delay Time	td(off)	-	19	-	
Fall Time	tf	-	12	-	

VDS = 10 V, VGEN = 10 V,
ID = 500 mA

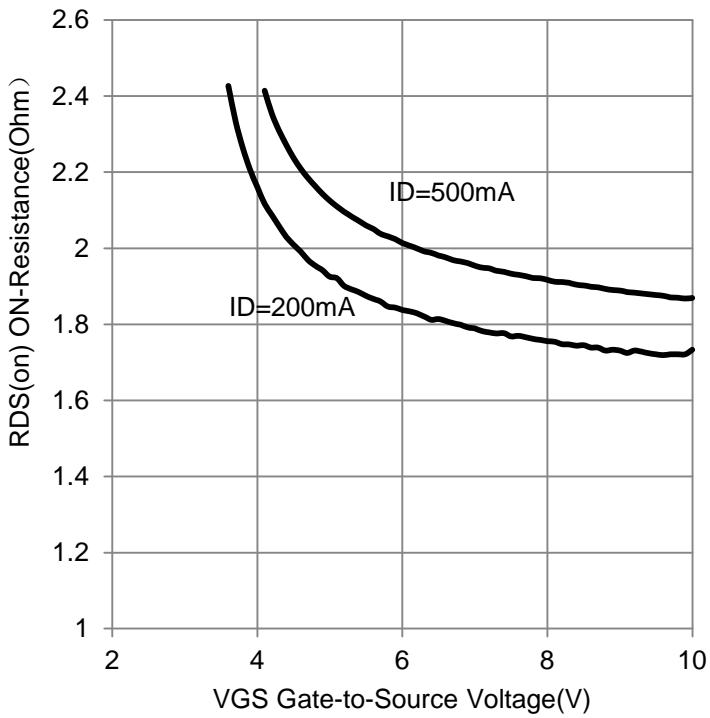
BODY–DRAIN DIODE RATINGS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Diode Forward On–Voltage (IS = 115 mA, VGS = 0 V) TJ = 25°C	VSD	-	-	1.4	V
TJ = 85°C		-	0.7	-	

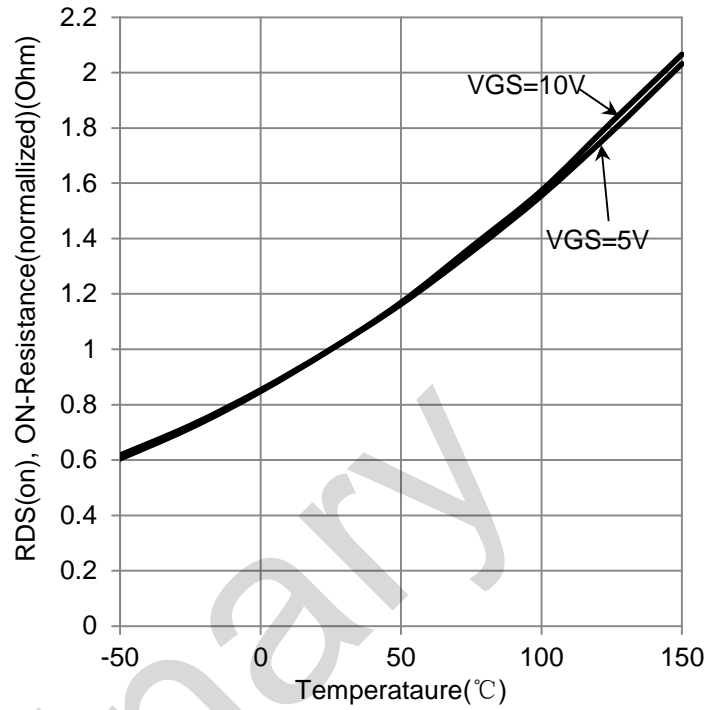
1. Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%.

5. ELECTRICAL CHARACTERISTICS CURVES


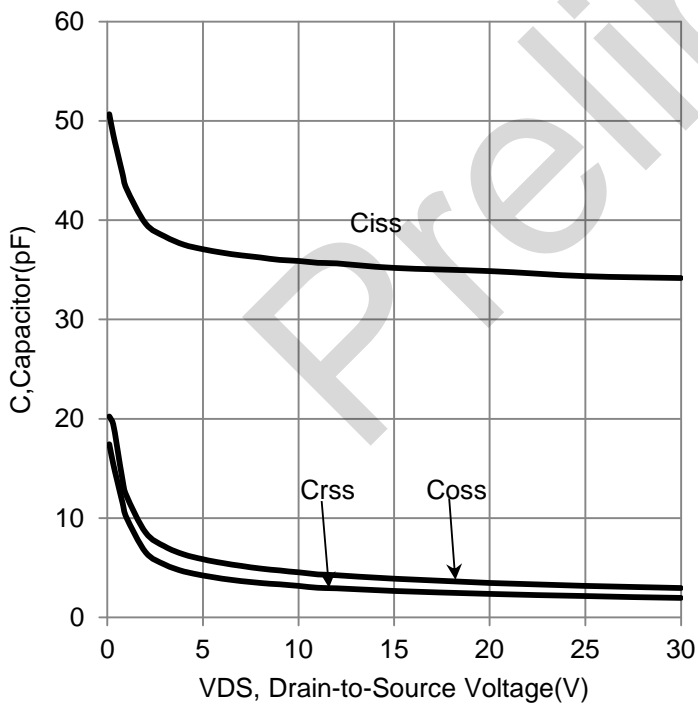
5. ELECTRICAL CHARACTERISTICS CURVES (Con.)



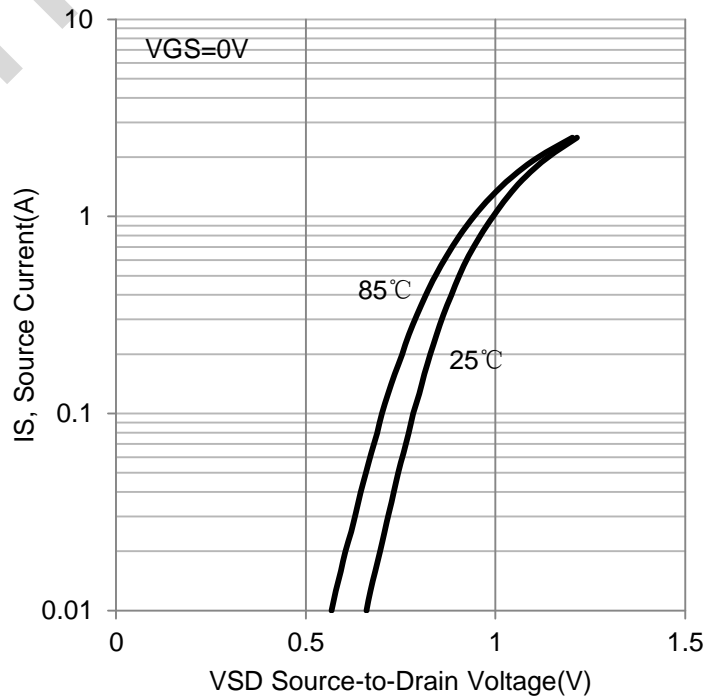
RDS(on) vs. VGS



RDS(on) vs. Temperature

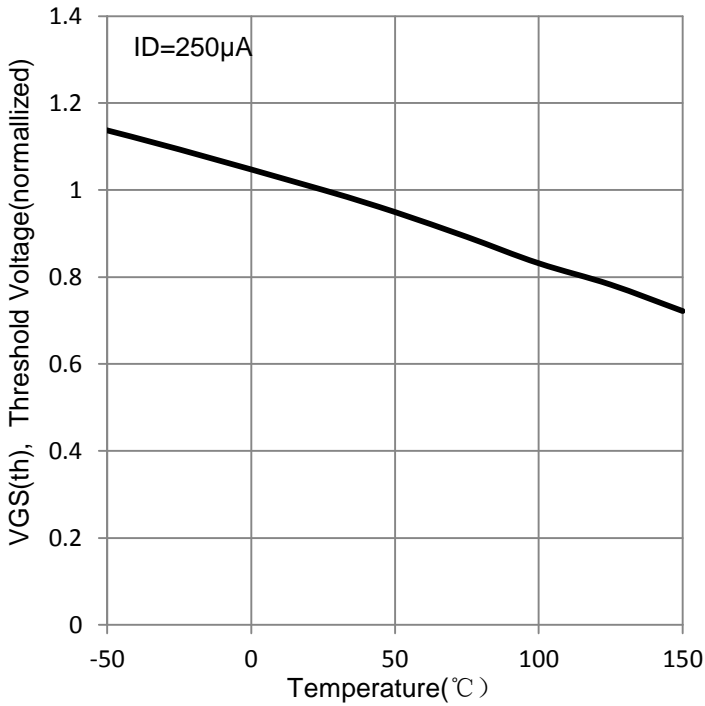


Capacitor vs. VDS

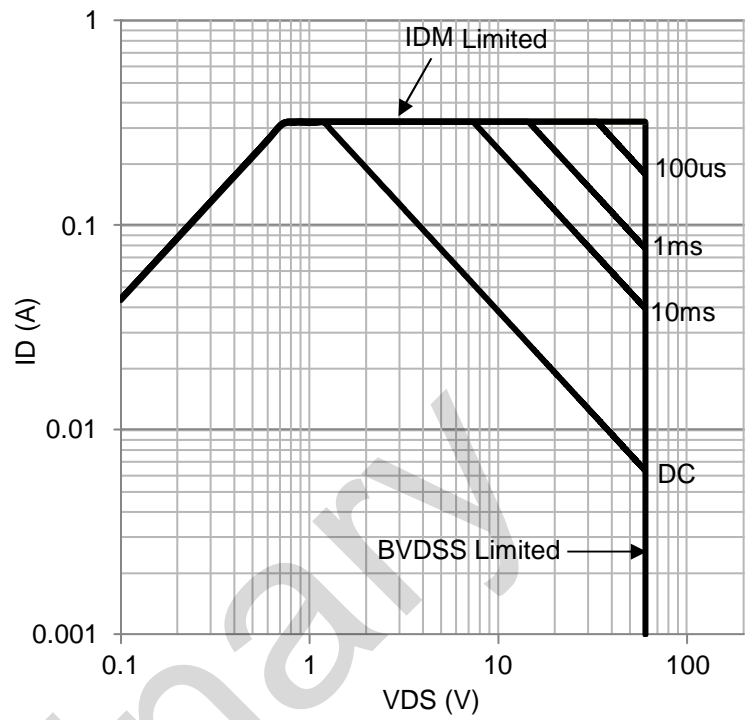


IS vs. VSD

5. ELECTRICAL CHARACTERISTICS CURVES (Con.)

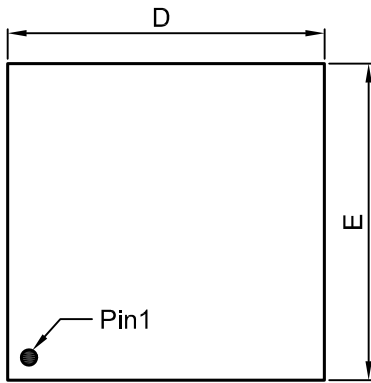


VGS(th) vs. Temperature

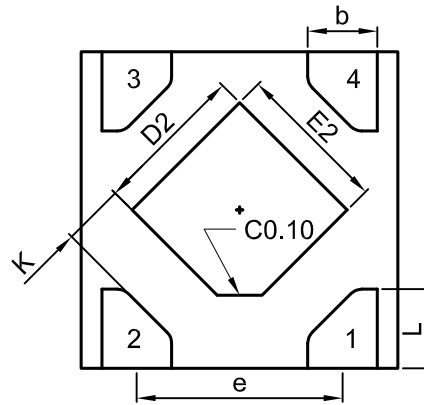


Safe Operating Area

Preliminary

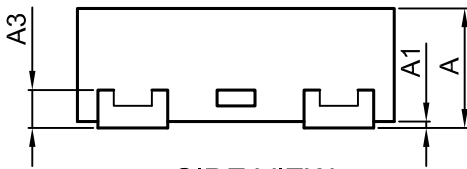
6. OUTLINE AND DIMENSIONS


TOP VIEW

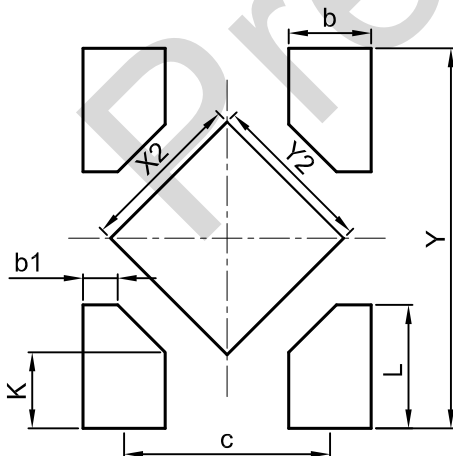


BOTTOM VIEW

DFN1010-4A			
DIM	MIN	NOR	MAX
A	0.34	0.37	0.40
A1	0.01	0.02	0.05
b	0.17	0.22	0.25
L	0.20	0.25	0.30
D	0.95	1.00	1.05
E	0.95	1.00	1.05
D2	0.43	0.48	0.53
E2	0.43	0.48	0.53
e	0.65		
A3	0.127REF.		
K	0.15	-	-
All Dimensions in mm			



SIDE VIEW

7. SOLDERING FOOTPRINT


DFN1010-4A	
DIM	(mm)
X2	0.52
Y2	0.52
L	0.39
Y	1.20
K	0.24
b	0.26
c	0.65
b1	0.11

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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