

BRCS700P10DPQ

Rev.A Dec.-2023

/ Descriptions

TO-252 P MOS

P-CHANNEL MOSFET in a TO-252 Plastic Package.

/ Features

$V_{DS}(V)=-100V$ $I_D=-22A$

$R_{DS(ON)}@-10V<70m\Omega$ (Typ.67mR)

$R_{DS(ON)}@-4.5V<85m\Omega$ (Typ.70mR)

AEC-Q101

Qualified to AEC-Q101 Standards for High Reliability,

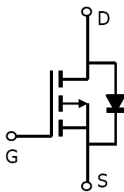
HF Product.

/ Applications

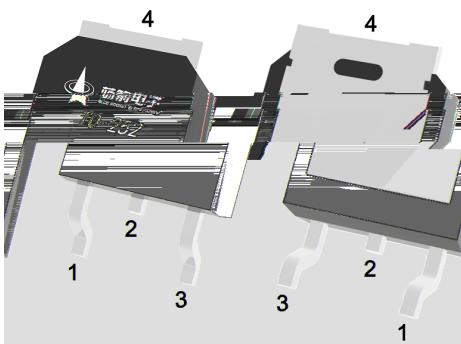
DC/DC

Power Management of Industrial DC/DC Converter, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 G

PIN 2 D

PIN 3 S

PIN 4 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-100	V
Drain Current - Continuous		$I_D(T_c=25^\circ\text{C})$	-22	A
Drain Current – Pulsed		I_{DM}	-66	A
Gate-Source Voltage		V_{GS}	20	V
Power Dissipation		$P_D(T_c=25^\circ\text{C})$	75	W
Single Pulse Avalanche Energy($L=0.5\text{mH}$)		E_{AS}	176.4	mJ
Avalanche Current($L=0.5\text{mH}$)		I_{AS}	-21	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	
Thermal resistance, junction - ambient	Steady-State	R_{JA}	62	/ W
Thermal resistance, junction - case	Steady-State	R_{JC}	1.67	

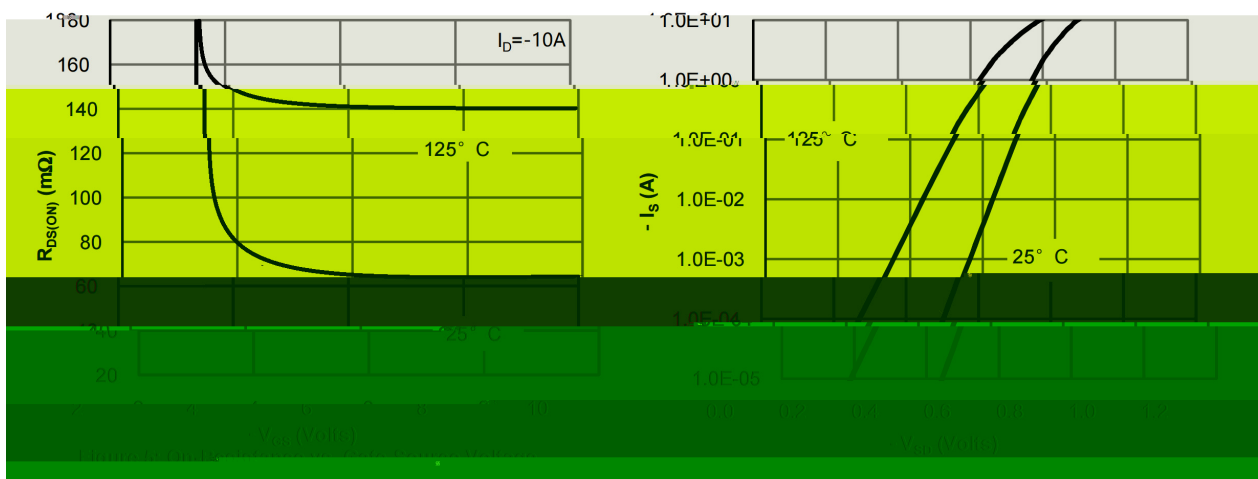
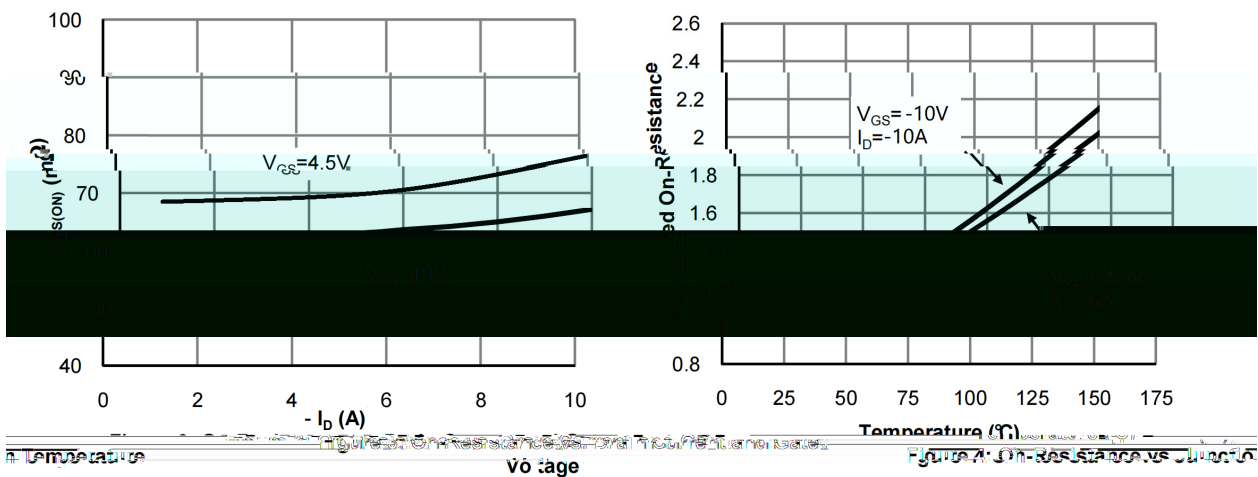
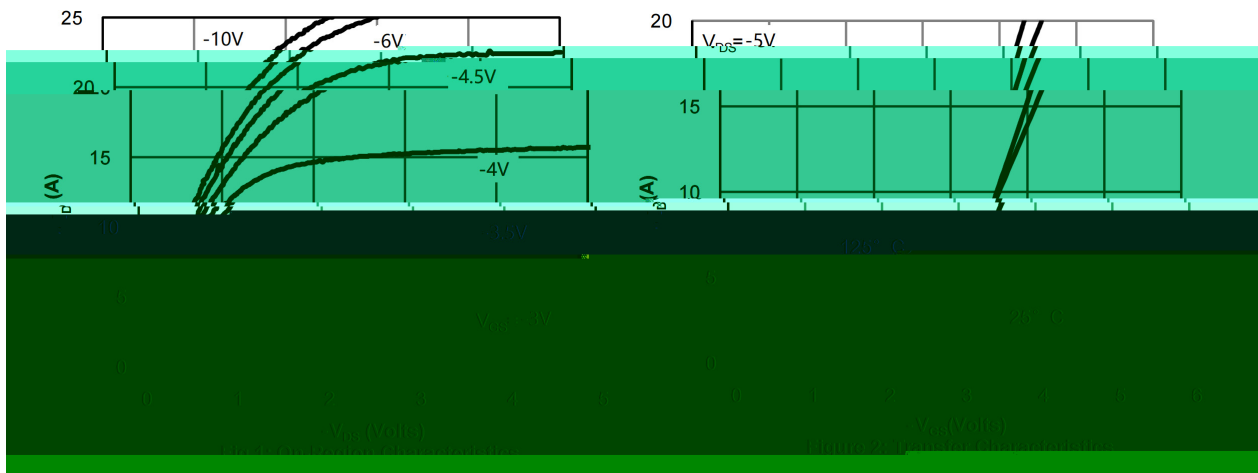
/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu\text{A}$ $V_{GS}=0\text{V}$	-100	-113		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-100\text{V}$ $V_{GS}=0\text{V}$			-1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu\text{A}$	-1	-2.0	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10\text{V}$, $I_D=-10\text{A}$		67	70	m Ω
		$V_{GS}=-4.5\text{V}$, $I_D=-6\text{A}$		70	85	
Diode Forward Voltage	V_{SD}	$I_S=-1\text{A}$, $V_{GS}=0\text{V}$			-1.2	V
Input Capacitance	C_{iss}	$V_{DS}=-15\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		2820		pF
Output Capacitance	C_{oss}			840		
Reverse Transfer Capacitance	C_{rss}			670		
Gate resistance	R_g	$V_{GS}=0\text{V}$ $V_{DS}=0\text{V}$ $f=1\text{MHz}$		2.7		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=-10\text{V}$, $V_{DS}=-50\text{V}$, $I_D=-5\text{A}$		5.9		nC
Total Gate Charge	$Q_{g(4.5V)}$			2.7		
Gate Source Charge	Q_{gs}			1.2		
Gate Drain Charge	Q_{gd}			1.2		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-50V$ $R_L=10$ $R_{GEN}=3$		6		ns
Turn-On Rise Time	t_r			2.4		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			2.6		

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

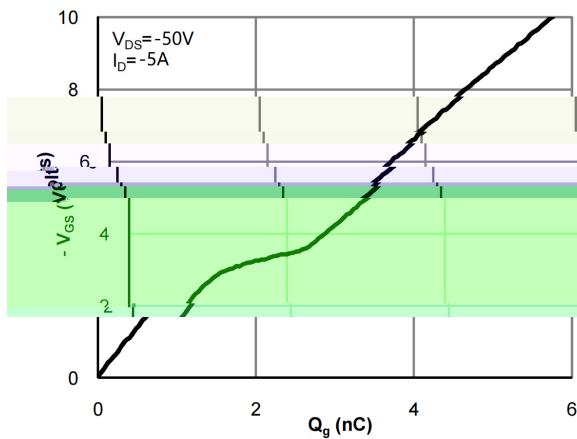


Figure 7: Gate-Charge Characteristics

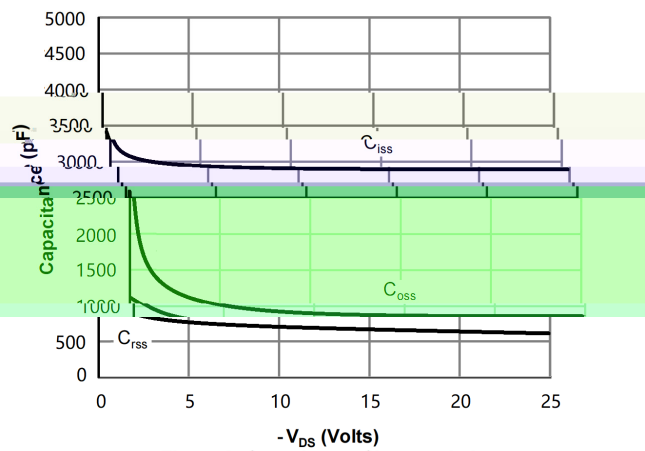


Figure 8: Capacitance Characteristics

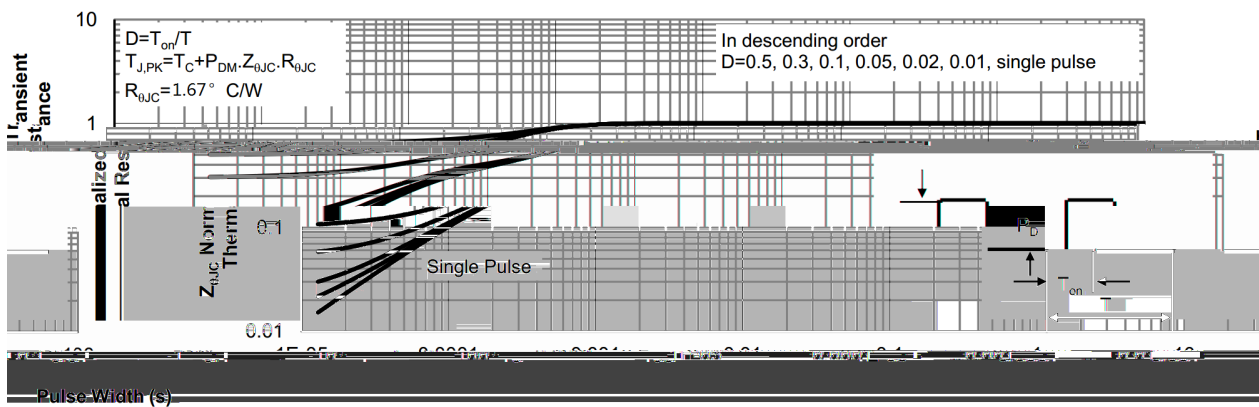
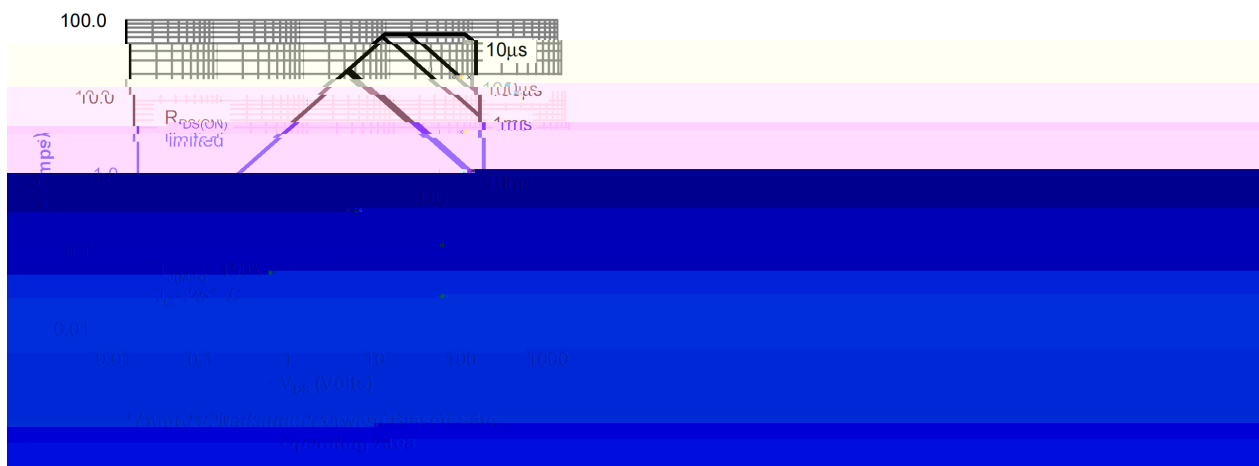
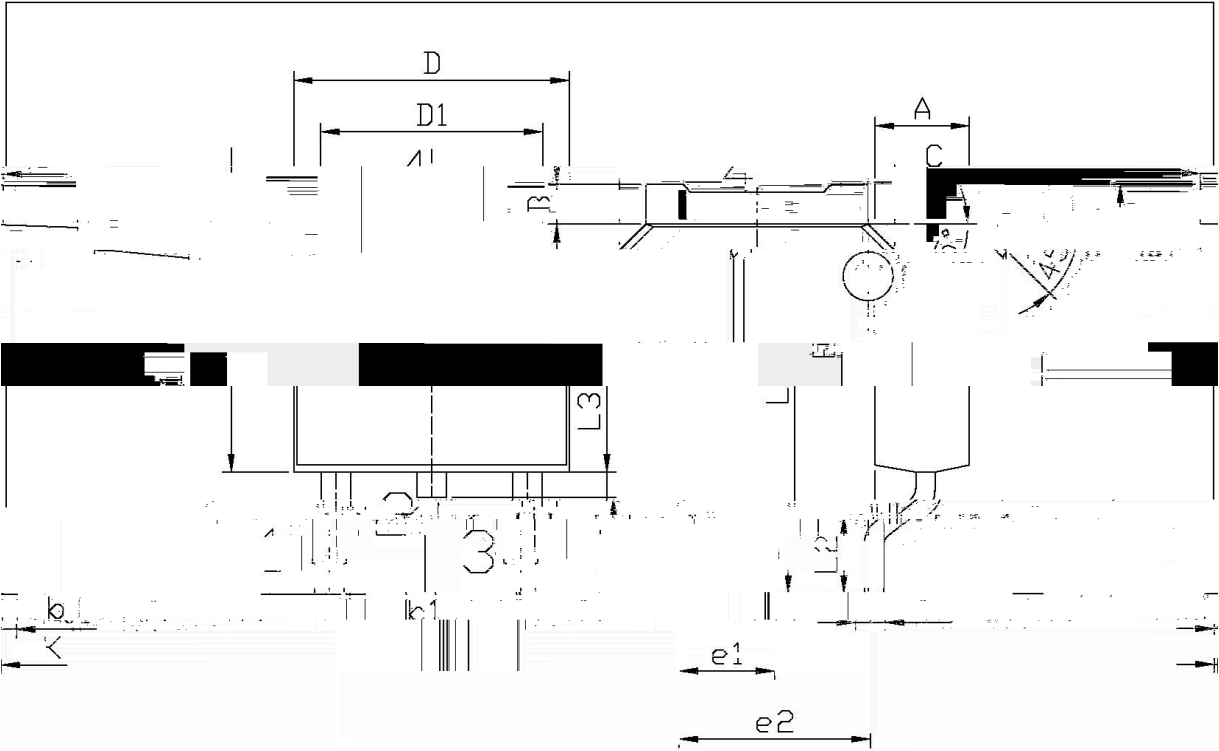


Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions

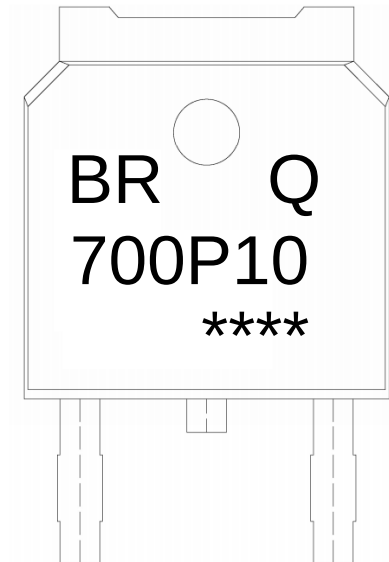


单位：mm

Symbol		Dimensions In Millimeters		Symbol		Dimensions In Millimeters	
		Min	Max			Min	Max
A		5.95	6.75	B		2.20	2.70
B		0.95	1.25	C		0.70	0.90
C		0.70	0.90	D		0.60	0.90
D		0.60	0.90	D1		5.50	6.75
D1		5.50	6.75	L1		0.45	0.55
L1		0.45	0.55	L2		1.70	2.00
L2		1.70	2.00	L3		0.45	0.55
L3		0.45	0.55	e1		2.24	2.34
e1		2.24	2.34	e2		9.85	10.35
e2		9.85	10.35	k1		0.45	0.55
k1		0.45	0.55	k2		0.45	0.55
k2		0.45	0.55	k3		0.45	0.55
k3		0.45	0.55	k4		0.45	0.55
k4		0.45	0.55	k5		0.45	0.55
k5		0.45	0.55	k6		0.45	0.55
k6		0.45	0.55	k7		0.45	0.55
k7		0.45	0.55	k8		0.45	0.55
k8		0.45	0.55	k9		0.45	0.55
k9		0.45	0.55	k10		0.45	0.55
k10		0.45	0.55	k11		0.45	0.55
k11		0.45	0.55	k12		0.45	0.55
k12		0.45	0.55	k13		0.45	0.55
k13		0.45	0.55	k14		0.45	0.55
k14		0.45	0.55	k15		0.45	0.55
k15		0.45	0.55	k16		0.45	0.55
k16		0.45	0.55	k17		0.45	0.55
k17		0.45	0.55	k18		0.45	0.55
k18		0.45	0.55	k19		0.45	0.55
k19		0.45	0.55	k20		0.45	0.55
k20		0.45	0.55	k21		0.45	0.55
k21		0.45	0.55	k22		0.45	0.55
k22		0.45	0.55	k23		0.45	0.55
k23		0.45	0.55	k24		0.45	0.55
k24		0.45	0.55	k25		0.45	0.55
k25		0.45	0.55	k26		0.45	0.55
k26		0.45	0.55	k27		0.45	0.55
k27		0.45	0.55	k28		0.45	0.55
k28		0.45	0.55	k29		0.45	0.55
k29		0.45	0.55	k30		0.45	0.55
k30		0.45	0.55	k31		0.45	0.55
k31		0.45	0.55	k32		0.45	0.55
k32		0.45	0.55	k33		0.45	0.55
k33		0.45	0.55	k34		0.45	0.55
k34		0.45	0.55	k35		0.45	0.55
k35		0.45	0.55	k36		0.45	0.55
k36		0.45	0.55	k37		0.45	0.55
k37		0.45	0.55	k38		0.45	0.55
k38		0.45	0.55	k39		0.45	0.55
k39		0.45	0.55	k40		0.45	0.55
k40		0.45	0.55	k41		0.45	0.55
k41		0.45	0.55	k42		0.45	0.55
k42		0.45	0.55	k43		0.45	0.55
k43		0.45	0.55	k44		0.45	0.55
k44		0.45	0.55	k45		0.45	0.55
k45		0.45	0.55	k46		0.45	0.55
k46		0.45	0.55	k47		0.45	0.55
k47		0.45	0.55	k48		0.45	0.55
k48		0.45	0.55	k49		0.45	0.55
k49		0.45	0.55	k50		0.45	0.55
k50		0.45	0.55	k51		0.45	0.55
k51		0.45	0.55	k52		0.45	0.55
k52		0.45	0.55	k53		0.45	0.55
k53		0.45	0.55	k54		0.45	0.55
k54		0.45	0.55	k55		0.45	0.55
k55		0.45	0.55	k56		0.45	0.55
k56		0.45	0.55	k57		0.45	0.55
k57		0.45	0.55	k58		0.45	0.55
k58		0.45	0.55	k59		0.45	0.55
k59		0.45	0.55	k60		0.45	0.55
k60		0.45	0.55	k61		0.45	0.55
k61		0.45	0.55	k62		0.45	0.55
k62		0.45	0.55	k63		0.45	0.55
k63		0.45	0.55	k64		0.45	0.55
k64		0.45	0.55	k65		0.45	0.55
k65		0.45	0.55	k66		0.45	0.55
k66		0.45	0.55	k67		0.45	0.55
k67		0.45	0.55	k68		0.45	0.55
k68		0.45	0.55	k69		0.45	0.55
k69		0.45	0.55	k70		0.45	0.55
k70		0.45	0.55	k71		0.45	0.55
k71		0.45	0.55	k72		0.45	0.55
k72		0.45	0.55	k73		0.45	0.55
k73		0.45	0.55	k74		0.45	0.55
k74		0.45	0.55	k75		0.45	0.55
k75		0.45	0.55	k76		0.45	0.55
k76		0.45	0.55	k77		0.45	0.55
k77		0.45	0.55	k78		0.45	0.55
k78		0.45	0.55	k79		0.45	0.55
k79		0.45	0.55	k80		0.45	0.55
k80		0.45	0.55	k81		0.45	0.55
k81		0.45	0.55	k82		0.45	0.55
k82		0.45	0.55	k83		0.45	0.55
k83		0.45	0.55	k84		0.45	0.55
k84		0.45	0.55	k85		0.45	0.55
k85		0.45	0.55	k86		0.45	0.55
k86		0.45	0.55	k87		0.45	0.55
k87		0.45	0.55	k88		0.45	0.55
k88		0.45	0.55	k89		0.45	0.55
k89		0.45	0.55	k90		0.45	0.55
k90		0.45	0.55	k91		0.45	0.55
k91		0.45	0.55	k92		0.45	0.55
k92		0.45	0.55	k93		0.45	0.55
k93		0.45	0.55	k94		0.45	0.55
k94		0.45	0.55	k95		0.45	0.55
k95		0.45	0.55	k96		0.45	0.55
k96		0.45	0.55	k97		0.45	0.55
k97		0.45	0.55	k98		0.45	0.55
k98		0.45	0.55	k99		0.45	0.55
k99		0.45	0.55	k100		0.45	0.55

T0-252

/ Marking Instructions



BR

Q

700P10

Note:

BR: Company Code

Q: Automobile halogen-free product Code

700P10: Product Type Code

****: Lot No. Code, code change with Lot No

() /

Note:

- 1

150 200

60 120sec;

1.Preheating:150~200 , Time:60~120sec.
- 2

255±5

5±0.5sec;

2.Peak Temp.:255±5 , Duration:5±0.5sec.
- 3

2 10

/sec.

3. Cooling Speed: 2~10 /sec.