BRCS4266SCQ

Rev.A Mar.-2023

DATA SHEET

/ Descriptions

VRS0 ; ṂṂ Ł Q ڏ MOS ʃ ῳ Ẕ ᒉ N-Channel MOSFET in a SOP-8 Plastic Package.

/ Features

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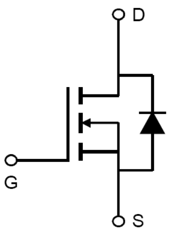
Low $R_{DS(ON)}$, Low Gate Charge, Optimized for fast-switching, RoHS, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

/ Applications

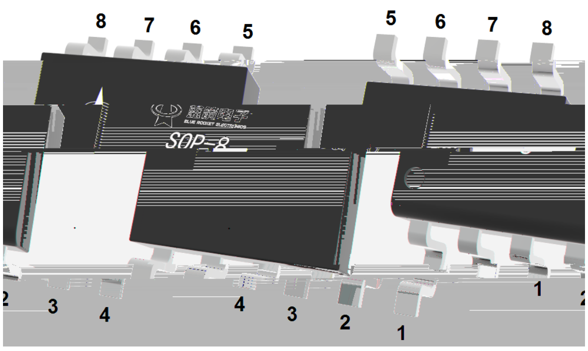
GF2GF ⁼ DF2GF ڃ Ω ᴴ ª ℓ Ω ╙ ı ڭ ´ ╙2´ ╙ ڃ Ω ᴴ ᵽ ɔ ȝ ⁼ Ṫ ў ı ◗ ʼ ∩ ڃ Ẕ ז Ԑ ⌊ ∂

Synchronus Rectification in DC/DC and AC/DC Converters, Isolated DC/DC Converters in Telecom and Industrial, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1:S PIN 2:S PIN 3 χ S PIN 4 χ G

PIN5 PIN 6 PIN 7 PIN 8:D

/ Marking

ð ᴍ ٲ ب ˝ See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

v Ѭ Parameter		ч N Symbol	Ѭ Ө Rating	D Ң Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25	I_D	10	A
	T_A=70		8.0	A
Pulsed Drain Current C		I_{DM}	40	A
Avalanche Current C		I_{AS}	20	A
Avalanche energy L=0.1mH C		E_{AS}	20	mJ
VDS Spike	10 μ S	V_{SPIKE}	72	V
Power Dissipation B	T_A=25	P_D	3.1	W
	T_A=70		2.0	W
Maximum Junction-to-Ambient A t ≤ 10S		R_{JA}	40	/ W
Maximum Junction-to-Ambient AD Steady-State			75	/ W
Maximum Junction-to Lead Steady-State		R_{JL}	24	/ W
Operating and Junction Temperature Range		T_j T_{stg}	-55 +150	

/ Electrical Characteristics(Ta=25)

v Ѭ Parameter	ч N Symbol	Ш ; Ţ Test Conditions	ѱ ŋ Ө Min	Ɛ ȝ Ө Typ	ѱ ƶ Ө Max	D Ң Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250 A	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V V_{GS}=0V			1.0	A
		V_{DS}=60V V_{GS}=0V T_J=55			5.0	A
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250 A	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=10A		12	15	m
		V_{GS}=10V I_D=10A T_J=125		20.5	25	
		V_{GS}=4.5V I_D=9.0A		15	19	
Forward Transconductance	g_{FS}	V_{DS}=5.0V I_D=10A		35		S
Diode Forward Voltage	V_{SD}	I_S=10A V_{GS}=0V		0.72	1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I_S				4.0	A

/ Electrical Characteristics(Ta=25)

v Q Parameter	N Symbol	 Test Conditions	 Min	 Typ	 Max	D Unit
Input Capacitance	C_{iss}	V_{DS}=30V V_{GS}=0V f=1.0MHz		1340		pF
Output Capacitance	C_{oss}			123		
Reverse Transfer Capacitance	C_{rss}			10		
Gate resistance	R_g	f=1.0MHz	0.7	1.5	2.3	F
Total Gate Charge(10V)	Q_g	V_{DD}=10V I_D=10A V_{DS}=30V		21	30	nC
Total Gate Charge(4.5V)				9.0	15	
Gate-Source Charge	Q_{gs}			4.7		
Gate-Drain Charge	Q_{gd}			2.6		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=10V V_{DS}=30V R_L=3.0 R_{GEN}=3.0		6.0		ns
Turn-On Rise Time	t_r			2.5		
Turn-Off Delay Time	$t_{d(off)}$			22		
Turn-Off Fall Time	t_f			2.5		
Body Diode Reverse Recovery Time	t_{rr}	I_F=10A dI/dt=500A/Ps		15.5		ns
Body Diode Reverse Recovery Charge	Q_{rr}			55.5		nC

Notes:

A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The value in any given application depends on the user's specific board design.

B. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using 10s junction-to-ambient thermal resistance.

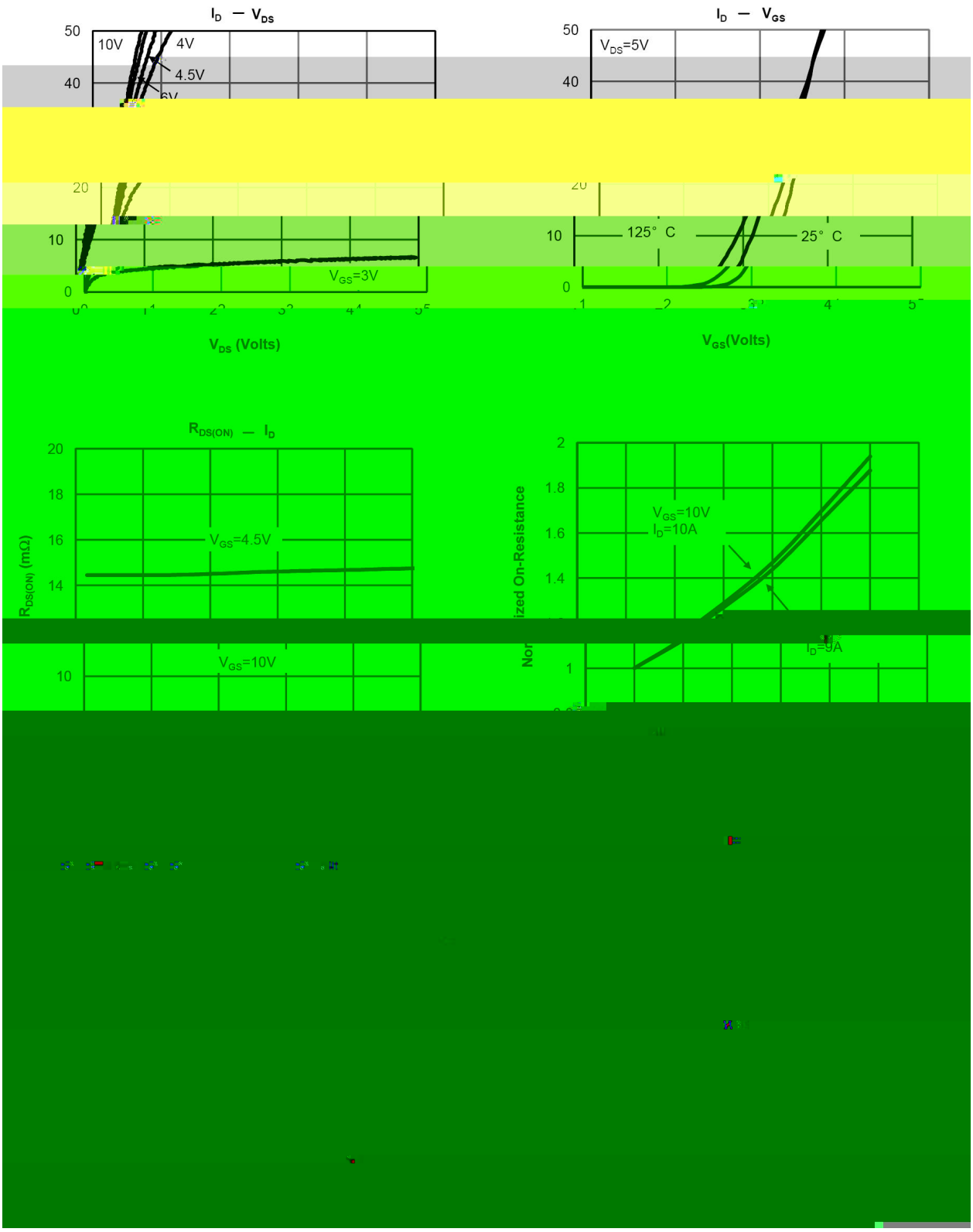
C. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J=25°C.

D. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

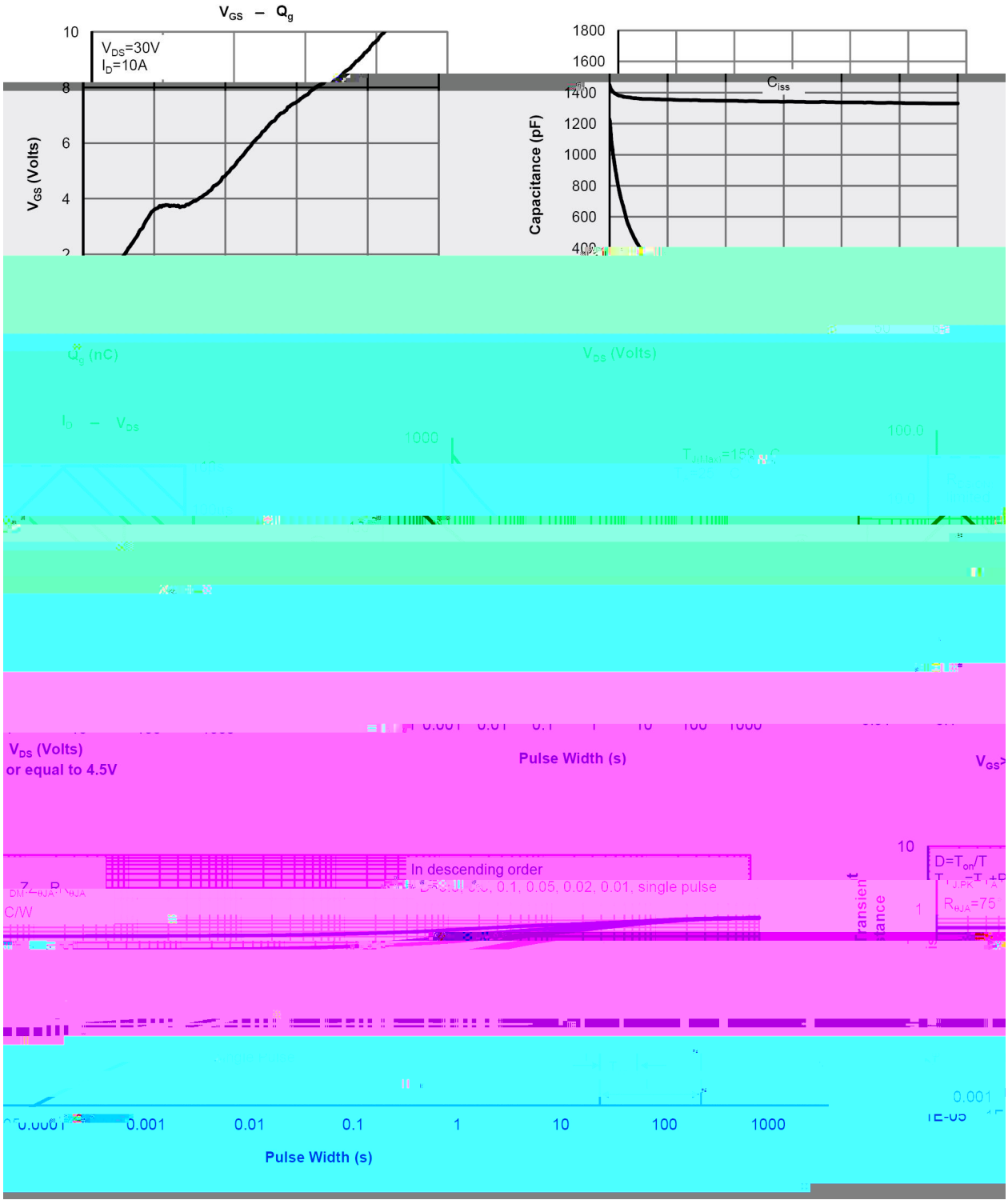
E. The static characteristics in Figures 1 to 6 are obtained using <300Ps pulses, duty cycle 0.5% max.

F. These curves are based on the junction-to-ambient thermal impedance which is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, assuming a maximum junction temperature of $T_{J(MAX)}$=150°C. The SOA curve provides a single pulse rating.

/ Electrical Characteristic Curve

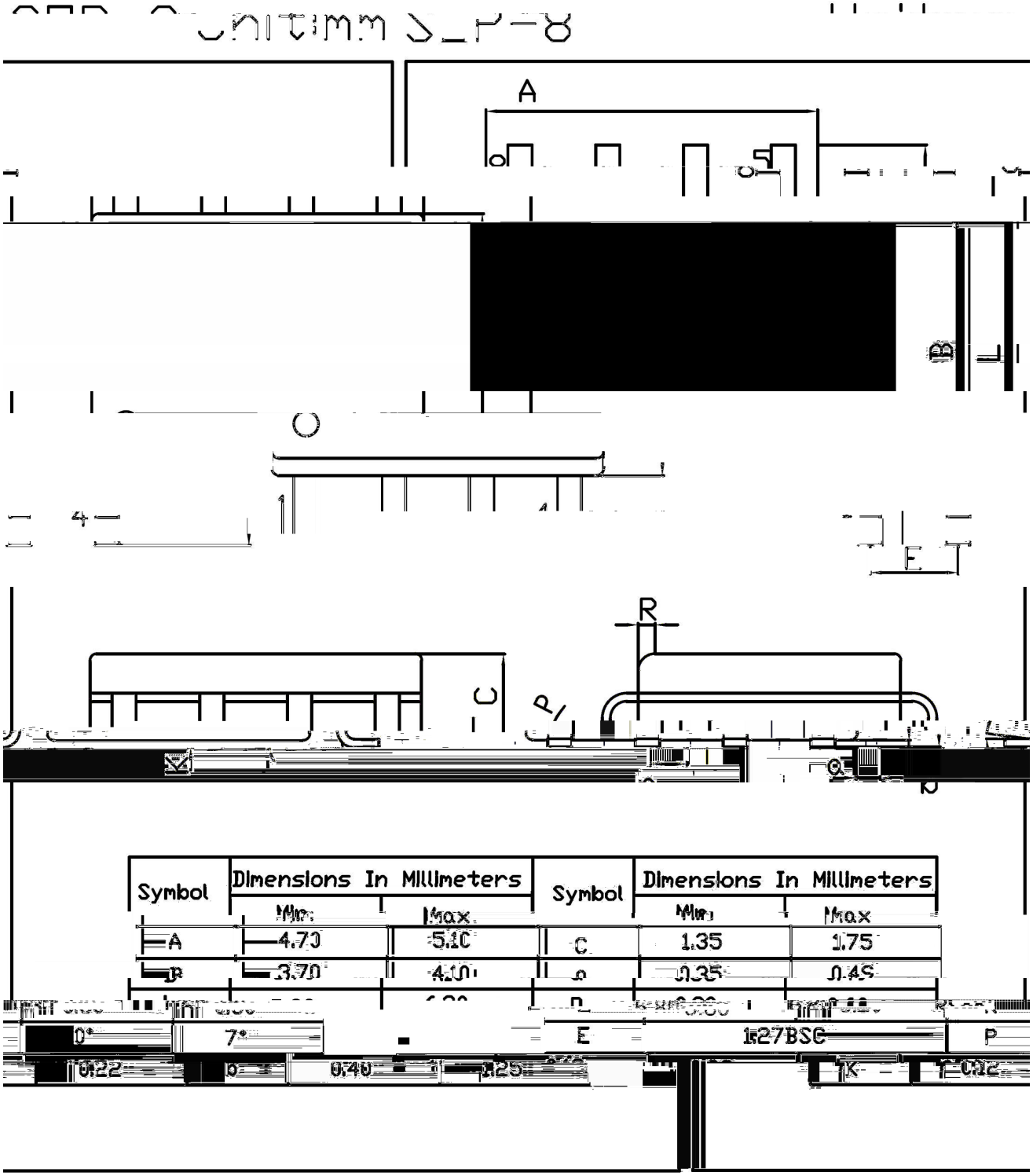


/ Electrical Characteristic Curve



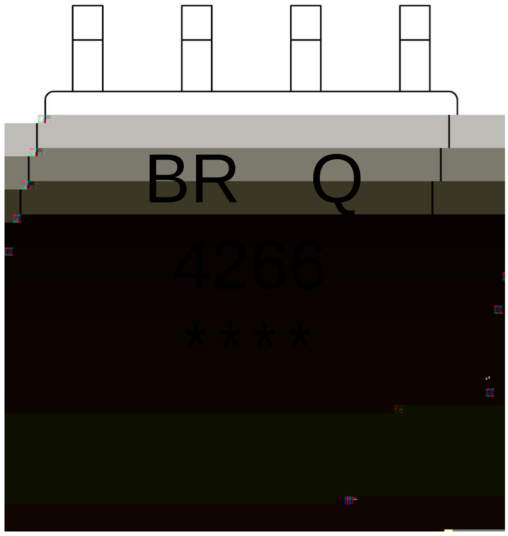
/ Test Circuit & Waveform

/ Package Dimensions



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min.	Max.		Min.	Max.
A	4.70	5.10	C	1.35	1.75
B	3.70	4.10	c	0.35	0.45

/ Marking Instructions



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Note:

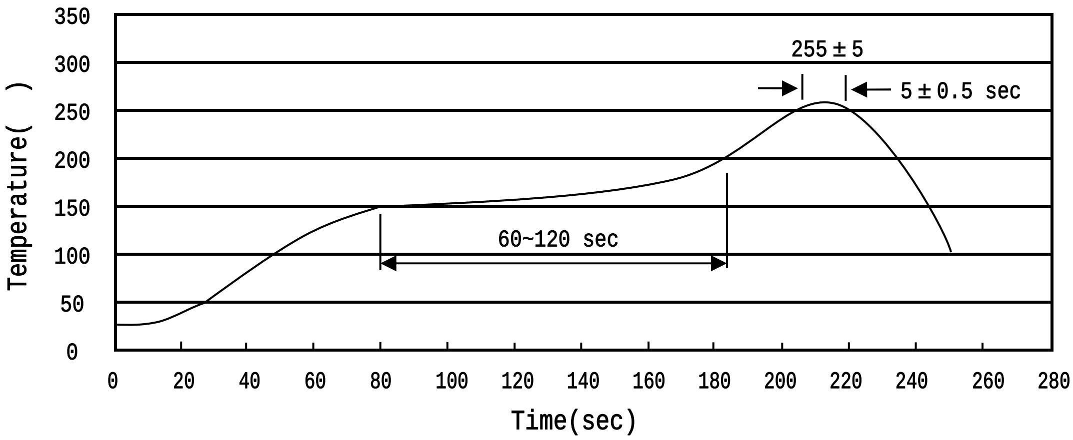
BR:　　Company Code

Q:　　Automobile halogen-free product Code

4266 χ　　Product Type

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

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



ب ˝ χ

1 ĺ ♬ □ ŷ 150 Ḱ 200 ɫ ı `H ڗ 60 Ḱ 120sec;

2 Š Ӫ □ ŷ 255 ° 5 ɫ ı `H ڗ 'Y ﾊ ㎘ 5 ° 0.5sec;

3 ì ˙ ٦ ˛ ɔ ه ŷ ㎘ 2 Ḱ 10 ɫ /sec.

Note:

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

2.Peak Temp.:255 ° 5 ɫ , Duration:5 ° 0.5sec.

3. Cooling Speed: 2~10 ɫ /sec.

/ Resistance to Soldering Heat Test Conditions

□ ŷ χ 260 ° 5 ɫ `H ڗ χ 10 ° 1 sec. Temp.:260±5 ɫ Time:10±1 sec

/ Packaging SPEC.

ɒ ` ɣ Ł / REEL

Package Type	Units					Dimension (unit mm³)		
SOP/ESOP-8	4,000	2	8,000	6	48,000	13 ×12	360×360×50	380×335×366

/ Notices