

/ Descriptions

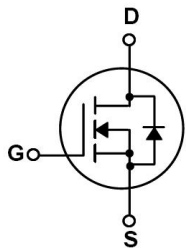
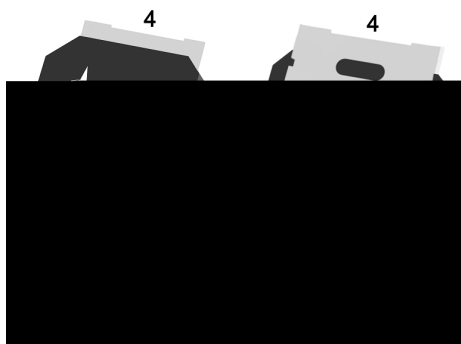
TO-252 N

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

/ Features $R_{DS(on)}$ C_{rss} AEC-Q101Low $R_{DS(on)}$, low gate charge, low C_{rss} , fast switching, Qualified to AEC-Q101 Standards for High Reliability, HF Product.**/ Applications**

DC/DC

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products, 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.

BRCS035N04SDPQ

Rev.A Dec.-2023

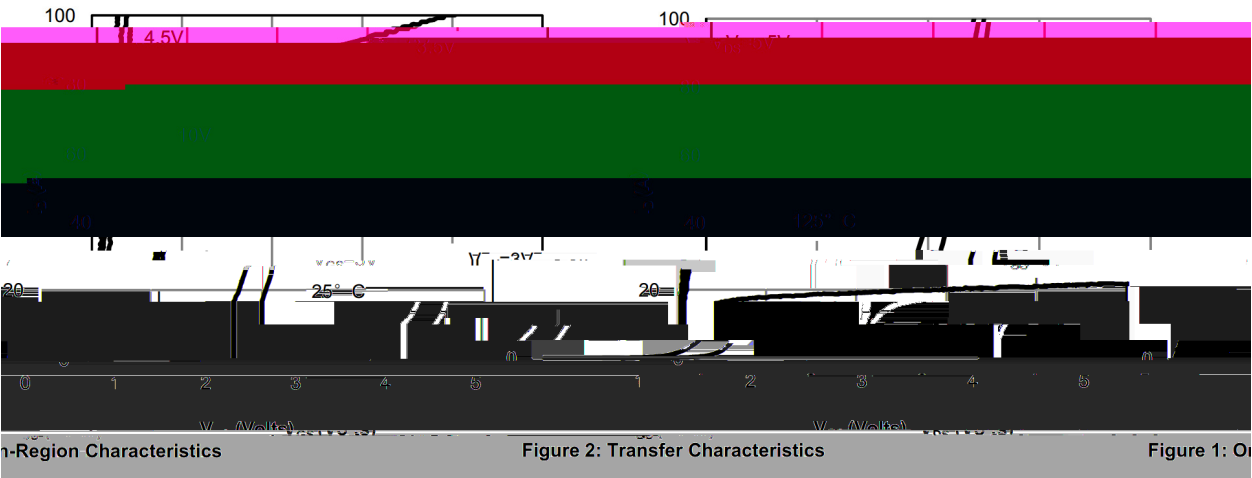
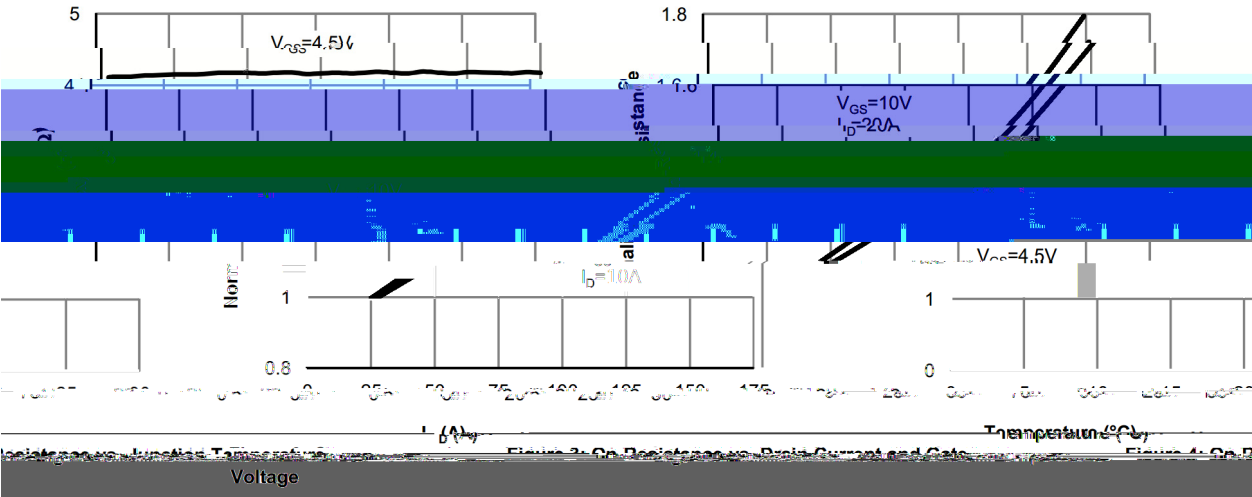
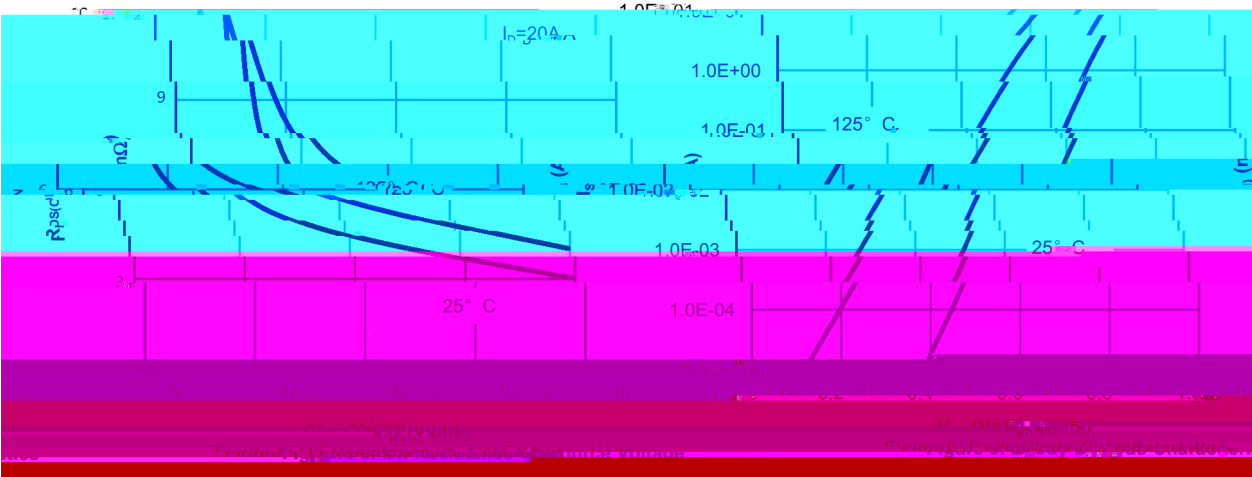
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	136	A
Drain Current - Pulsed		I_{DM}	280	A
Gate-Source Voltage		V_{GS}	± 20	V
Avalanche Current		I_{AS}	33	A
Single Pulsed Avalanche Energy(L=0.5mH)		E_{AS}	435	mJ
Power Dissipation		$P_D(T_c=25^\circ\text{C})$	118	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	20	/W
	Steady-State		50	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	1.06	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	40			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V$ $V_{GS}=0V$			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 100	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V V _{DS} =20V R _L =1Ω R _{GEN} =3Ω		11		ns
Turn-On Rise Time	t _r			11		
Turn-Off Delay Time	t _{d(off)}			40		
Turn-Off Fall Time	t _f			10		

Electrical Characteristic Curve



/ Electrical Characteristic Curve

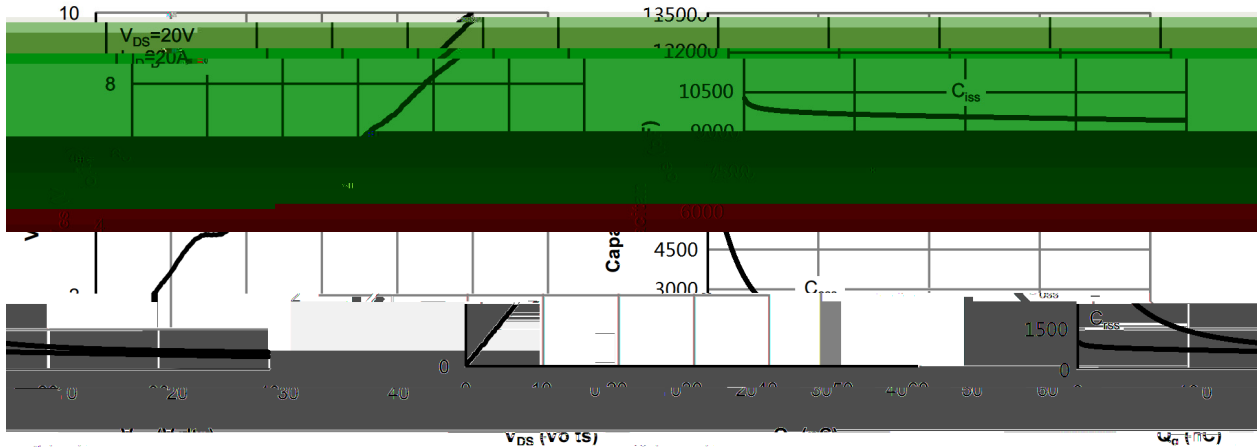


Figure 6: Capacitance Characteristics

Figure 7: Gate-Charge Characteristics

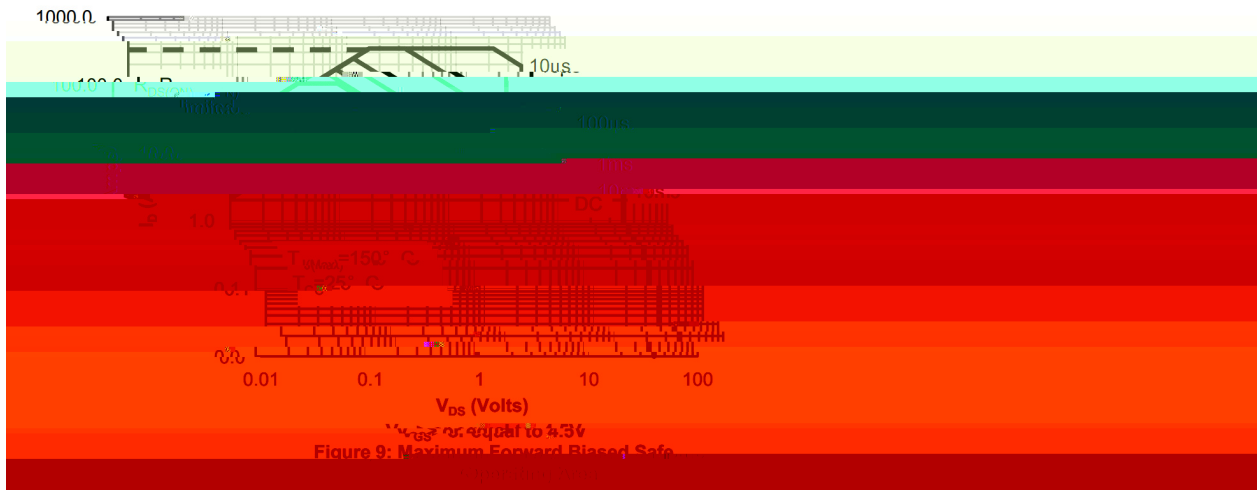


Figure 9: Maximum Forward Biased Safe Area

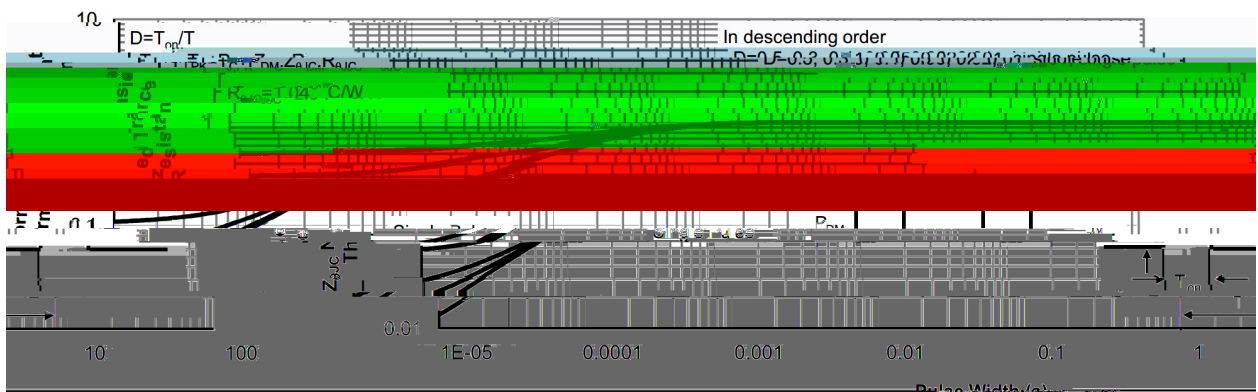
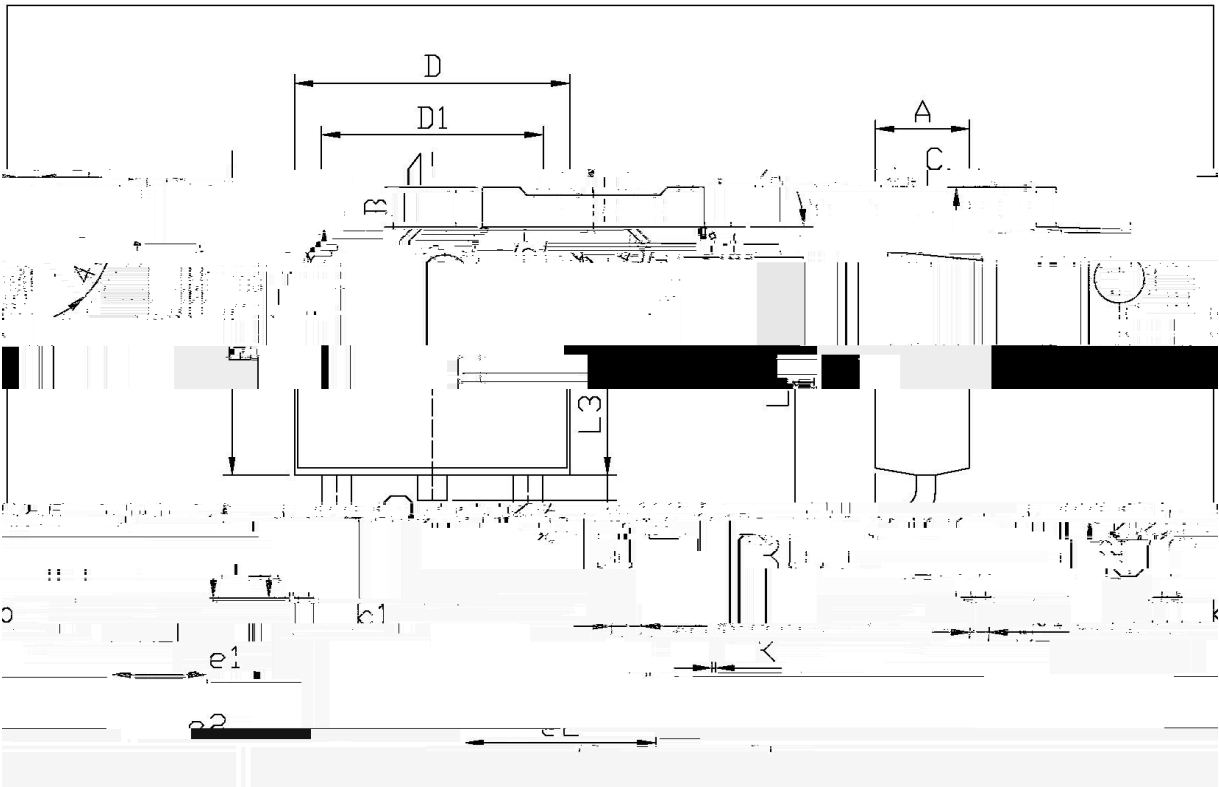


Figure 10: Normalized Maximum Transient Thermal Impedance

/ Package Dimensions

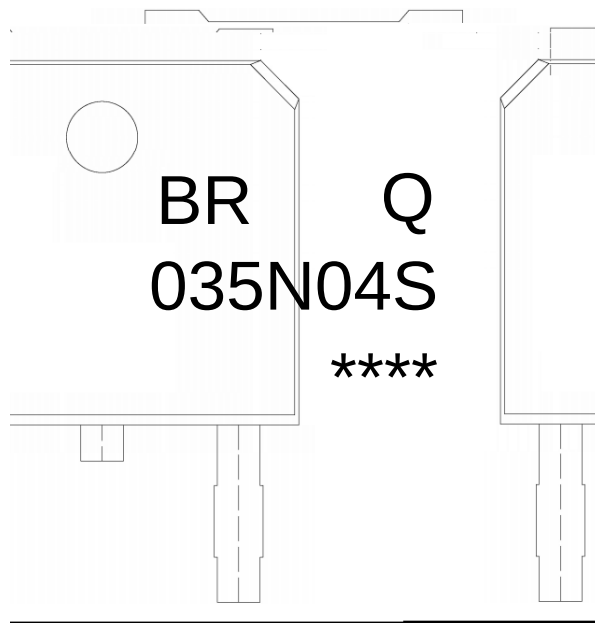


单位: mm

Dimensions in Millimeters				Dimensions in Millimeters			
Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
	0.08	0.10			0.08	0.10	
B	0.95	1.25		e1	2.24	2.34	
L3	0.70	0.90		e2	4.63	4.73	
h1	0.45	0.55		CL	9.85	10.35	
h2	0.45	0.55		CL	9.85	10.35	
h3	0.45	0.55		CL	9.85	10.35	
h4	0.45	0.55		CL	9.85	10.35	
h5	0.45	0.55		CL	9.85	10.35	
h6	0.45	0.55		CL	9.85	10.35	
h7	0.45	0.55		CL	9.85	10.35	
h8	0.45	0.55		CL	9.85	10.35	
h9	0.45	0.55		CL	9.85	10.35	
h10	0.45	0.55		CL	9.85	10.35	
h11	0.45	0.55		CL	9.85	10.35	
h12	0.45	0.55		CL	9.85	10.35	
h13	0.45	0.55		CL	9.85	10.35	
h14	0.45	0.55		CL	9.85	10.35	
h15	0.45	0.55		CL	9.85	10.35	
h16	0.45	0.55		CL	9.85	10.35	
h17	0.45	0.55		CL	9.85	10.35	
h18	0.45	0.55		CL	9.85	10.35	
h19	0.45	0.55		CL	9.85	10.35	
h20	0.45	0.55		CL	9.85	10.35	
h21	0.45	0.55		CL	9.85	10.35	
h22	0.45	0.55		CL	9.85	10.35	
h23	0.45	0.55		CL	9.85	10.35	
h24	0.45	0.55		CL	9.85	10.35	
h25	0.45	0.55		CL	9.85	10.35	
h26	0.45	0.55		CL	9.85	10.35	
h27	0.45	0.55		CL	9.85	10.35	
h28	0.45	0.55		CL	9.85	10.35	
h29	0.45	0.55		CL	9.85	10.35	
h30	0.45	0.55		CL	9.85	10.35	
h31	0.45	0.55		CL	9.85	10.35	
h32	0.45	0.55		CL	9.85	10.35	
h33	0.45	0.55		CL	9.85	10.35	
h34	0.45	0.55		CL	9.85	10.35	
h35	0.45	0.55		CL	9.85	10.35	
h36	0.45	0.55		CL	9.85	10.35	
h37	0.45	0.55		CL	9.85	10.35	
h38	0.45	0.55		CL	9.85	10.35	
h39	0.45	0.55		CL	9.85	10.35	
h40	0.45	0.55		CL	9.85	10.35	
h41	0.45	0.55		CL	9.85	10.35	
h42	0.45	0.55		CL	9.85	10.35	
h43	0.45	0.55		CL	9.85	10.35	
h44	0.45	0.55		CL	9.85	10.35	
h45	0.45	0.55		CL	9.85	10.35	
h46	0.45	0.55		CL	9.85	10.35	
h47	0.45	0.55		CL	9.85	10.35	
h48	0.45	0.55		CL	9.85	10.35	
h49	0.45	0.55		CL	9.85	10.35	
h50	0.45	0.55		CL	9.85	10.35	
h51	0.45	0.55		CL	9.85	10.35	
h52	0.45	0.55		CL	9.85	10.35	
h53	0.45	0.55		CL	9.85	10.35	
h54	0.45	0.55		CL	9.85	10.35	
h55	0.45	0.55		CL	9.85	10.35	
h56	0.45	0.55		CL	9.85	10.35	
h57	0.45	0.55		CL	9.85	10.35	
h58	0.45	0.55		CL	9.85	10.35	
h59	0.45	0.55		CL	9.85	10.35	
h60	0.45	0.55		CL	9.85	10.35	
h61	0.45	0.55		CL	9.85	10.35	
h62	0.45	0.55		CL	9.85	10.35	
h63	0.45	0.55		CL	9.85	10.35	
h64	0.45	0.55		CL	9.85	10.35	
h65	0.45	0.55		CL	9.85	10.35	
h66	0.45	0.55		CL	9.85	10.35	
h67	0.45	0.55		CL	9.85	10.35	
h68	0.45	0.55		CL	9.85	10.35	
h69	0.45	0.55		CL	9.85	10.35	
h70	0.45	0.55		CL	9.85	10.35	
h71	0.45	0.55		CL	9.85	10.35	
h72	0.45	0.55		CL	9.85	10.35	
h73	0.45	0.55		CL	9.85	10.35	
h74	0.45	0.55		CL	9.85	10.35	
h75	0.45	0.55		CL	9.85	10.35	
h76	0.45	0.55		CL	9.85	10.35	
h77	0.45	0.55		CL	9.85	10.35	
h78	0.45	0.55		CL	9.85	10.35	
h79	0.45	0.55		CL	9.85	10.35	
h80	0.45	0.55		CL	9.85	10.35	
h81	0.45	0.55		CL	9.85	10.35	
h82	0.45	0.55		CL	9.85	10.35	
h83	0.45	0.55		CL	9.85	10.35	
h84	0.45	0.55		CL	9.85	10.35	
h85	0.45	0.55		CL	9.85	10.35	
h86	0.45	0.55		CL	9.85	10.35	
h87	0.45	0.55		CL	9.85	10.35	
h88	0.45	0.55		CL	9.85	10.35	
h89	0.45	0.55		CL	9.85	10.35	
h90	0.45	0.55		CL	9.85	10.35	
h91	0.45	0.55		CL	9.85	10.35	
h92	0.45	0.55		CL	9.85	10.35	
h93	0.45	0.55		CL	9.85	10.35	
h94	0.45	0.55		CL	9.85	10.35	
h95	0.45	0.55		CL	9.85	10.35	
h96	0.45	0.55		CL	9.85	10.35	
h97	0.45	0.55		CL	9.85	10.35	
h98	0.45	0.55		CL	9.85	10.35	
h99	0.45	0.55		CL	9.85	10.35	
h100	0.45	0.55		CL	9.85	10.35	

T0-252

/ Marking Instructions



BR

Q

035N04S

Note:

BR: Company Code

Q: Automobile halogen-free product Code

035N04S: Product Type Code

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

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

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.