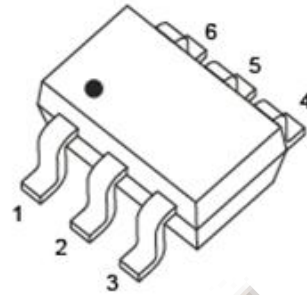


General Description



V(BR)DSS	RDS(ON)MAX	ID
N-Channel		
20V	90mΩ@4.5V	1.5A
	105mΩ@2.5V	
	154mΩ@1.8V	
P-Channel		
-20V	150mΩ@-4.5V	-1A
	180mΩ@-2.5V	
	260mΩ@-1.8V	

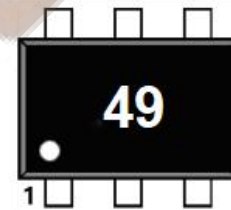


Features

- Lead free product is acquired
- Surface mount package
- Moisture Sensitivity Level 3

Mechanical Data

- SOT-363 Small Outline Plastic Package.
- Epoxy UL: 94V-0.
- Mounting Position: Any.



Package Marking and Ordering Information

Product ID	Package	Marking	Qty(PCS)
SI2429DW	SOT-363	49	3000

Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameters	Symbol	Value	Unit
Maximum Ratings			
Drain-Source Voltage(N)	VDS	20	V
Gate-Source Voltage(N)	VGS	± 10	V
Continuous Drain Current(N)	ID	1.5	A
Pulsed Drain Current (N)(TP≤10us)(note3)	IDM	6	A
Drain-Source Voltage(P)	VDS	-20	V
Gate-Source Voltage(P)	VGS	± 10	V
Continuous Drain Current(P)	ID	-1	A
Pulsed Drain Current (P)(TP≤10us)(note3)	IDM	-4	A
Thermal Characteristics			
Power Dissipation	PD	450	W
Junction Temperature	Tj	-55-+150	°C
Storage Temperature	Tstg	-55-+150	°C
Thermal Resistance from Junction to Ambient (2)	R θ JA	833	°C/W
Thermal Resistance from Junction to Lead (2)	R θ JL	277	°C/W

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

N-Channel						
Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V, ID=250μA	20			V
Gate-body Leakage	IGSS	VDS=0V, VGS=±10V			±100	nA
Zero Gate Voltage Drain current	IDSS	VDS=20V, VGS=0V			1.0	uA
Gate-Threshold voltage(note4)	VGS(th)	VDS=VGS,ID=250μA	0.55		1.1	V
Drain-Source On-Resistance (note4)	RDS(ON)	VGS=4.5V, ID=0.2A			90	m Ω
		VGS=2.5V, ID=0.6A			105	
		VGS=1.8V, ID=0.3A			154	
Diode Forward Voltage(note4)	VSD	VGS=0V,IS=1.5A			1.2	V
Dynamic						
Input capacitance	Ciss	VDS=10V, VGS=0V,f=1MHz		202		pF
Output capacitance	Coss			37		
Reverse Transfer capacitance	Crss			29		
Total gate charge	Qg	VDS=4.5V, VGS=10V,ID=1.5A		2.98		nC
Gate-source charge	Qgs			0.72		
Gate-drain charge	Qgd			0.59		
Reverse Recovery Charge	Qrr	IsD=1.5A,DI/DT=100A/us		0.9		ns
Reverse Recovery Time	Trr			9		
Turn-on Delay Time	td(on)	VGS=4.5V, VDS=10V, IDS=1.5A, RG=3Ω		3		
Rise time	tr			22		
Turn-off Delay Time	td(off)			13.2		
Fall time	tf			22		

P-Channel						
Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V, ID=-250μA	-20			V
Gate-body Leakage	IGSS	VDS=0V, VGS=±10V			±100	nA
Zero Gate Voltage Drain current	IDSS	VDS=-20V, VGS=0V			-1.0	uA
Gate-Threshold voltage(note4)	VGS(th)	VDS=VGS,ID=-250μA	-0.4		-1.0	V
Drain-Source On-Resistance (note4)	RDS(ON)	VGS=-4.5V, ID=-1.0A			150	mΩ
		VGS=-2.5V, ID=-0.6A			180	mΩ
		VGS=-1.8V, ID=-0.3A			260	mΩ
Diode Forward Voltage(note4)	VSD	VGS=0V,IS=-1.5A			-1.2	V
Dynamic						
Input capacitance	Ciss	VDS=-10V, VGS=0V,f=1MHz		225		PF
Output capacitance	Coss			35		
Reverse Transfer capacitance	Crss			33		
Total gate charge	Qg	VDS=-4.5V, VGS=-10V,ID=-1A		3		nC
Gate-source charge	Qgs			0.75		
Gate-drain charge	Qgd			0.55		
Reverse Recovery Charge	Qrr	IsD=-1A,DI/DT=100A/us		0.9		nS
Reverse Recovery Time	Trr			5.9		
Turn-on Delay Time	td(on)	VGS=-4.5V, VDS=-10V, IDS=-1A, RG=3Ω		6		
Rise time	tr			9		
Turn-off Delay Time	td(off)			22		
Fall time	tf			17.2		

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds
2. Surface Mounted on FR-4 Board Using Minimum Pad Size.
3. Pulse Width Limited by Maximum Junction Temperature
4. Pulse Test : Pulse Width ≤ 300us. Duty Cycle ≤ 2%
5. Switching characteristics are independent of operating junction temperature.
6. Guaranteed by Design. Not Subject to Production Testing

Typical characteristics

N-Channel

Fig. 1 - Output Characteristics

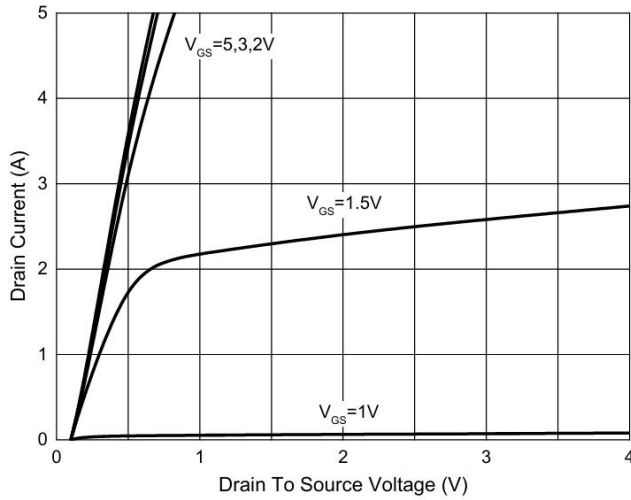


Fig. 2 - Transfer Characteristics

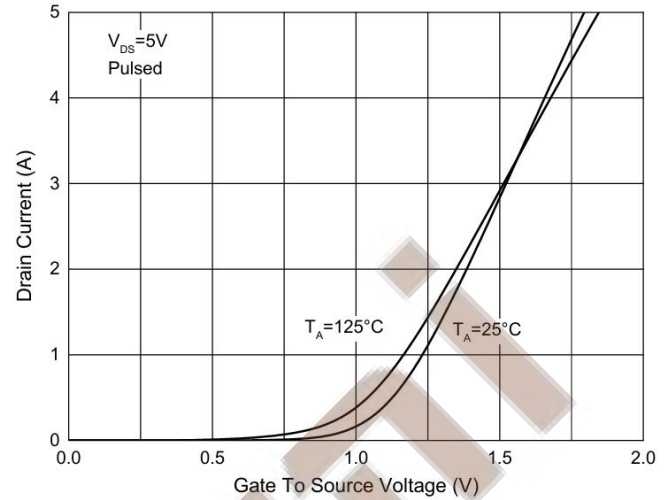


Fig. 3 - $R_{DS(ON)} - I_D$

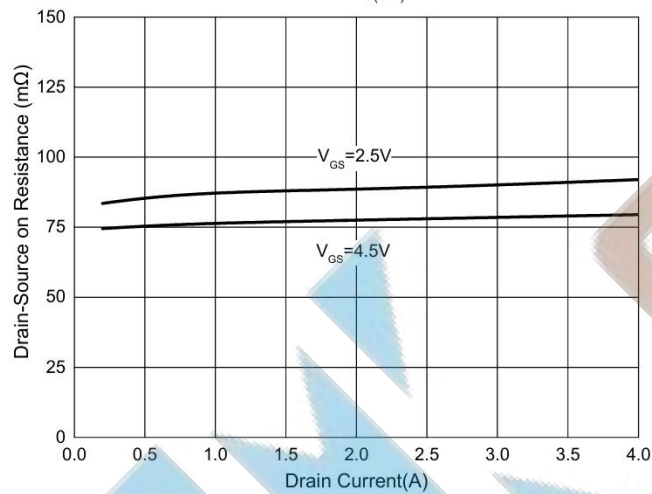


Fig. 4 - Normalized On Resistance Characteristics

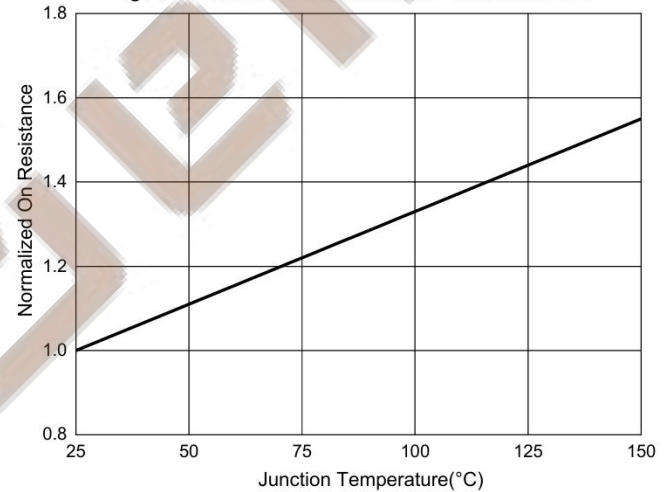


Fig. 5 - Gate Charge

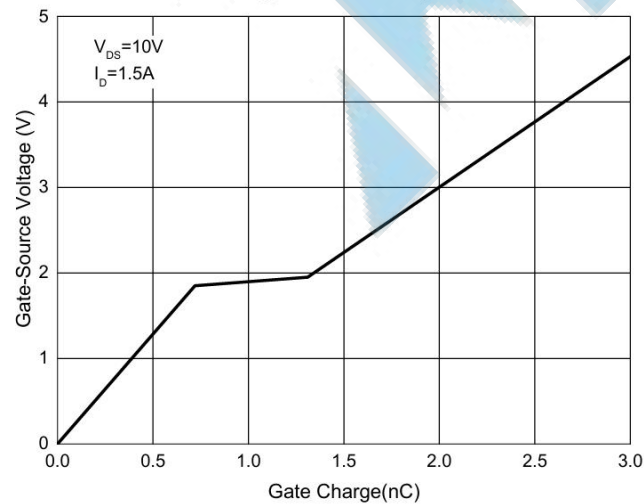
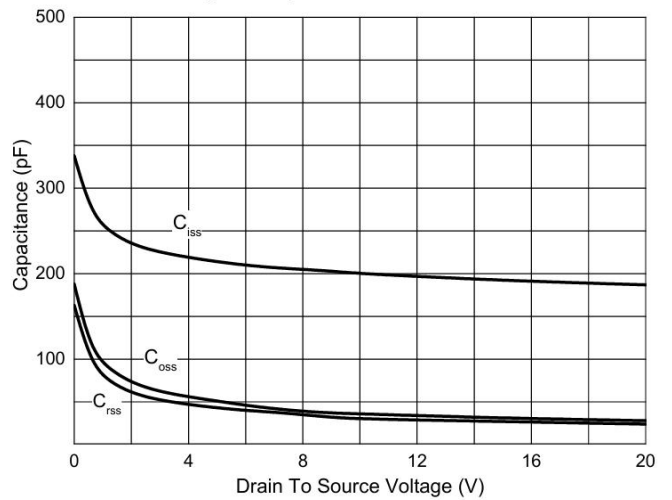


Fig. 6 - Capacitance Characteristics



P-Channel

Fig. 7 - Output Characteristics

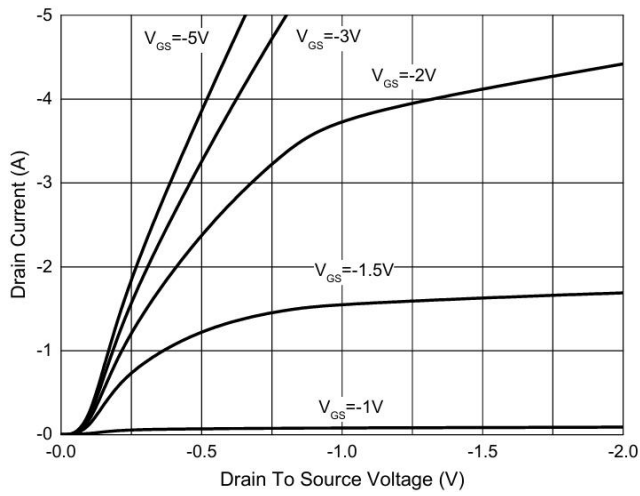


Fig. 8 - Transfer Characteristics

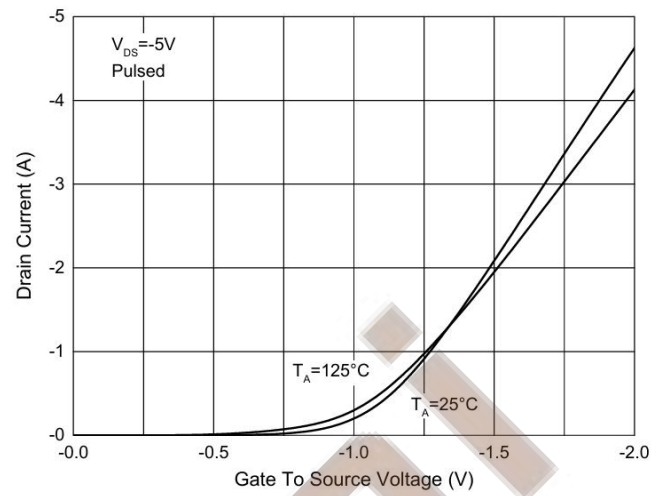


Fig. 9 - $R_{DS(ON)} - I_D$

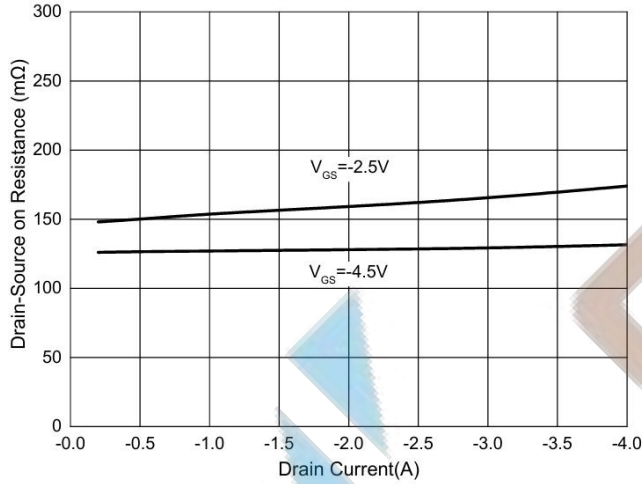


Fig. 10 - Normalized On Resistance Characteristics

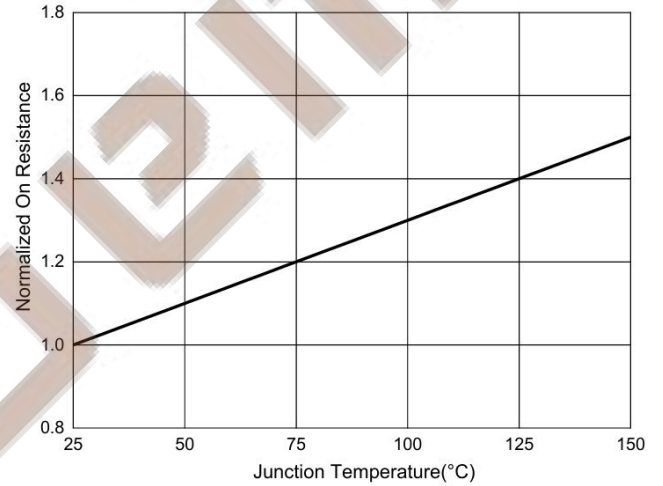


Fig. 11 - Gate Charge

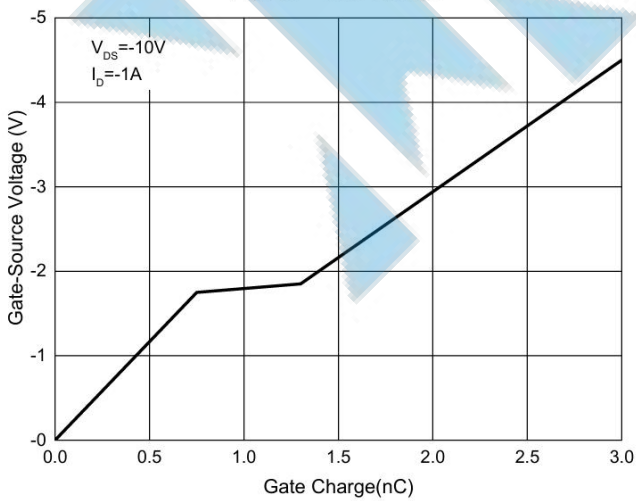
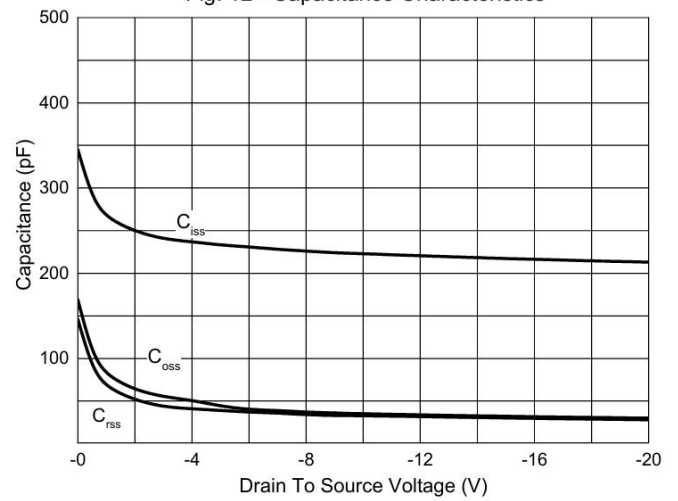
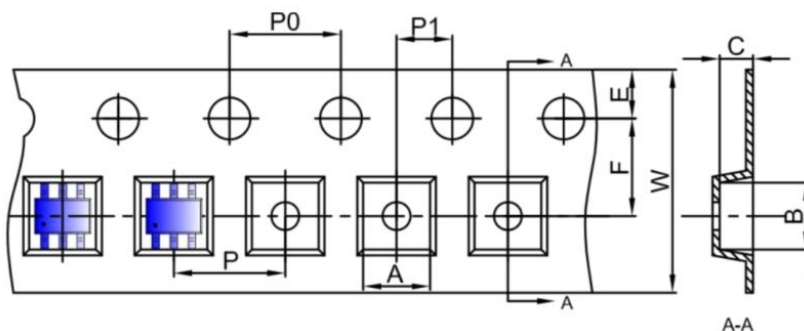


Fig. 12 - Capacitance Characteristics



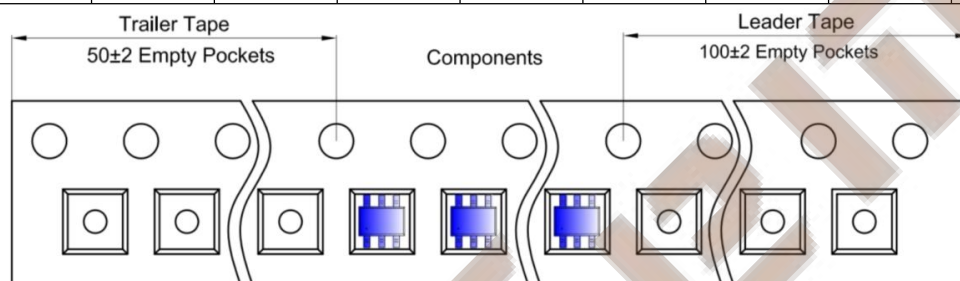
Package Information

Carrier Dimension(mm)

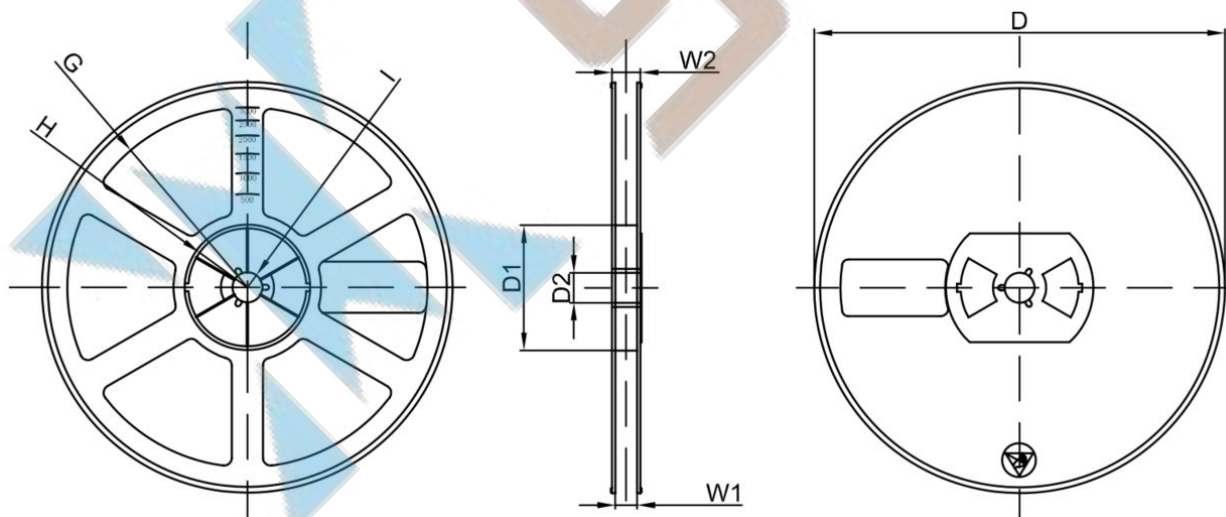


Dimensions are in millimeter

Pkg Type	A	B	C	d	E	F	P0	P	P1	W
SOT-363	2.25	2.55	1.20	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00



Reel Dimension(mm)



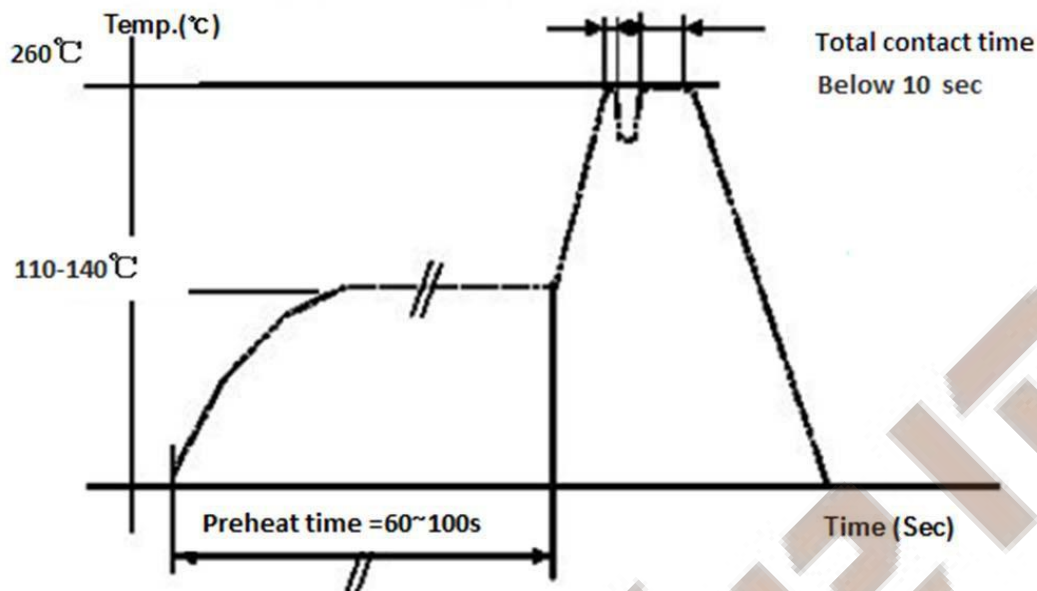
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Φ178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

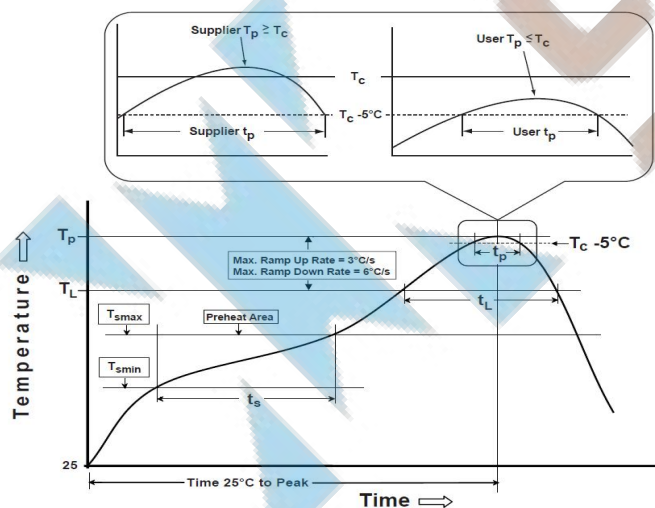
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT363	7'	178	3	210*208*203	45	440*400*230	180

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020

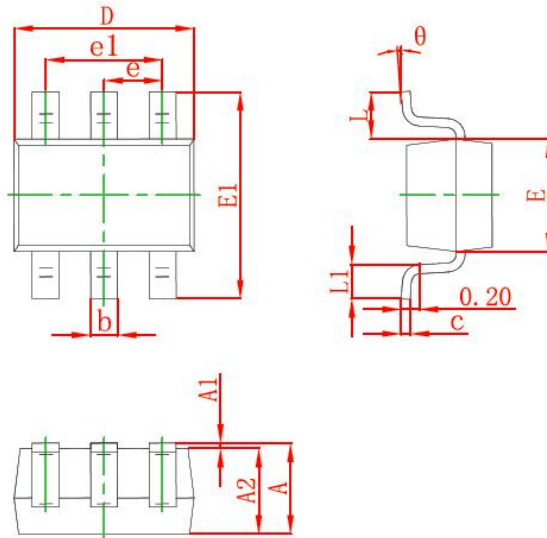


Preheat/Soak Temperature Min (T _{min}) Temperature Max (T _{max}) Time (ts) from (T _{min} to T _{max})	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217°C
Ramp-up Rate to 217°C (Melting Point of Solder)	3°C/sec
Time at Temp. > 217°C (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5°C
Time within 5°C below Peak Temp.	20~40 Sec
Cooling Rate	6°C/sec (max)
Time from 25°C to Peak Temp.	8min (max)

c) Manual Soldering

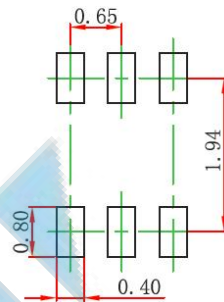
When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.100	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.400
e	0.650 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
θ	0°	8°

Suggested Pad Layout



Note:

1. Controlling dimension; in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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