High –speed multi-chip diode

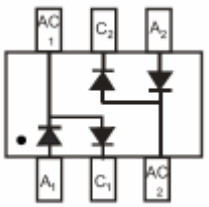
DAN217S6R

Description

The DAN217S6R consists of two set of high-speed switching diodes connected in series, fabricated in planar technology, and encapsulated in the small SOT-363 plastic SMD package.

Equivalent Circuit

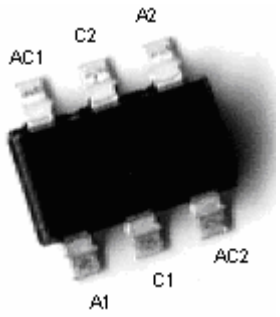
DAN217S6R



1：Anode
2：Cathode

Outline

SOT-363



Features

- Small plastic SMD package
- High switching speed: max. 4ns
- Continuous reverse voltage: max. 75V
- Repetitive peak reverse voltage: max. 85V
- Repetitive peak forward current: max. 450mA.
- Very low leakage current
- Pb-free package

Applications

- High-speed switching in thick and thin-film circuits.

Absolute Maximum Ratings, per diode @T_A=25℃

Parameters		Symbol	Min	Max	Unit
Repetitive peak reverse voltage		V_{RRM}	-	85	V
Continuous reverse voltage		V_R	-	85	V
Continuous forward current		I_F	-	160	mA
Non-repetitive peak forward current @square wave, Tj=125℃ prior to surge	t=1μs	I_{FSM}	-	4	A
	t=10ms		-	1	A
	t=1s		-	0.5	A
Total power dissipation (Note 1)		Ptot		200	mW
Total power dissipation (Note 2)		Ptot		300	mW
Junction Temperature		T_j	-	150	°C
Storage Temperature		T_{stg}	-65	+150	°C

Electrical Characteristics, per diode @ Tj=25℃ unless otherwise specified

Parameters	Symbol	Conditions	Min	Typ.	Max	Unit
Reverse breakdown voltage	$V_{(BR)R}$	I_R=100μA	85	-	-	V
Forward voltage	V_F	I_F=1mA	-	-	0.9	V
		I_F=10mA			1	V
		I_F=50mA			1.1	V
		I_F=150mA			1.25	V
Reverse current	I_R	V_R=75V	-	-	5	nA
Diode capacitance	C_D	V_R=0V, f=1MHz	-	2	-	pF
Reverse recovery time	trr	when switched from I_F=10mA to I_R=10mA,R_L=100Ω, measured at I_R=1mA	-	-	4	ns

Thermal Characteristics

Symbol	Parameter	Conditions	Value	Unit
Rth,j-a	thermal resistance from junction to ambient	Note 1	625	℃/W
Rth,j-a	thermal resistance from junction to ambient	Note 2	417	℃/W

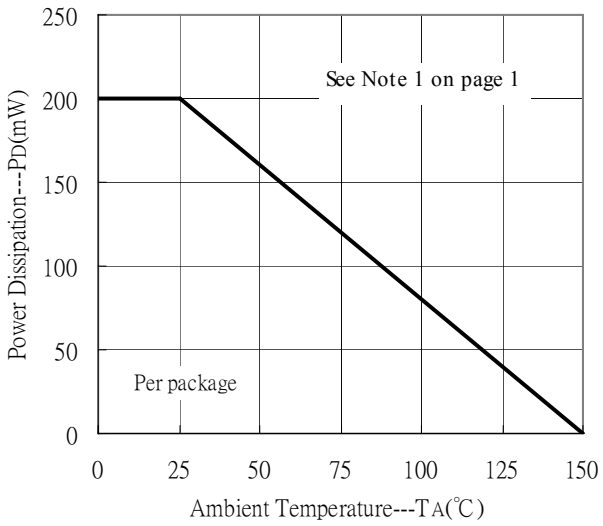
Note : 1. Device mounted on a FR-4 PCB with copper area of 1 inch × 0.82 inch and thickness 0.062 inch .
2. Device mounted on a Alumina PCB with area of 0.4 inch × 0.3 inch and thickness 0.024 inch .

Ordering Information

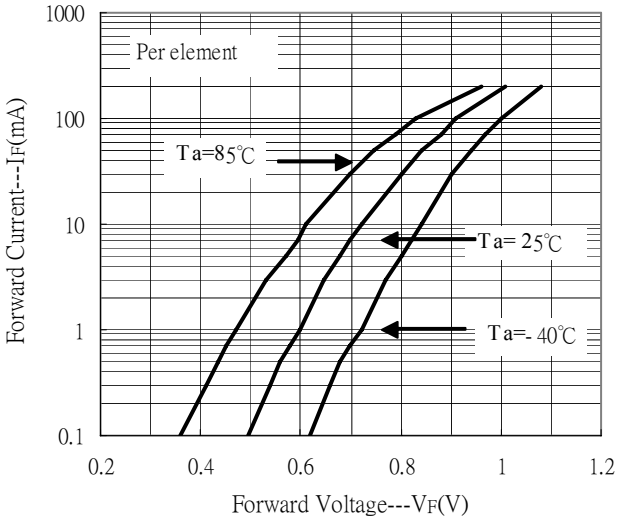
Device	Package	Shipping	Marking
DAN217S6R	SOT-363 (Pb-free)	3000 pcs / Tape & Reel	K52

Characteristic Curves

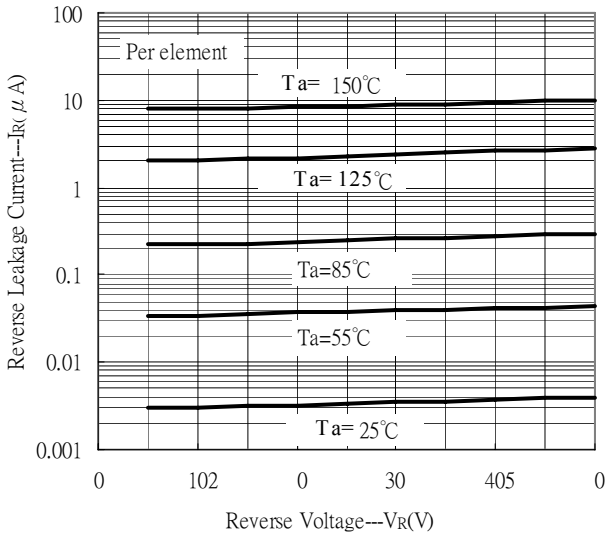
Power Derating Curve



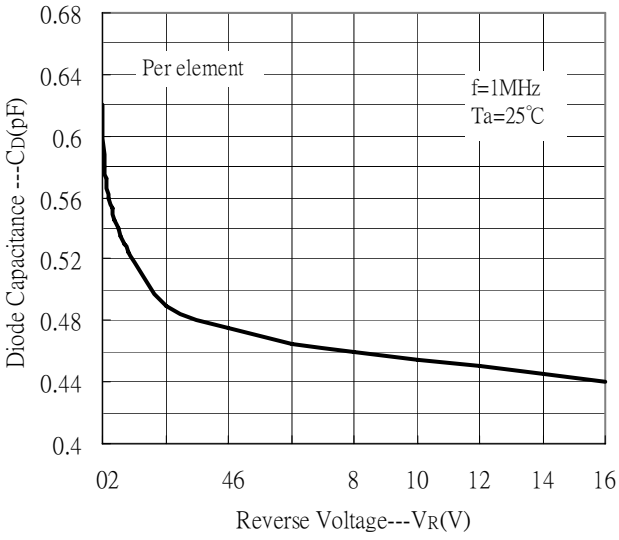
Forward Current vs Forward Voltage



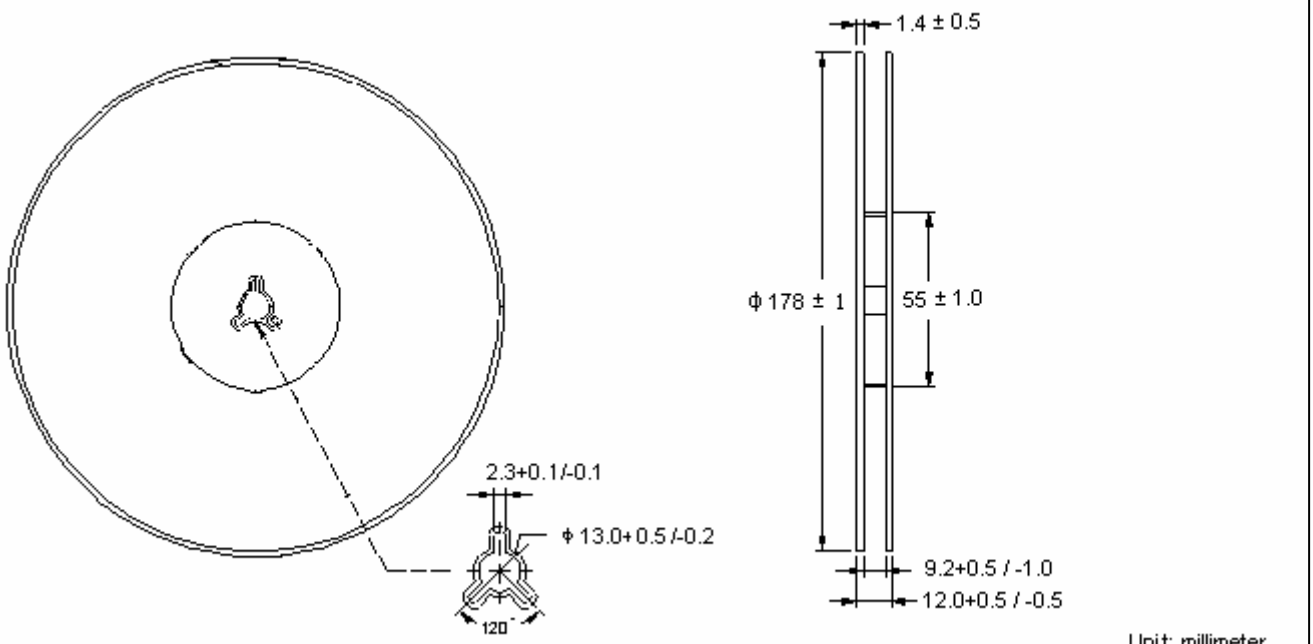
Reverse Leakage Current vs Reverse Voltage



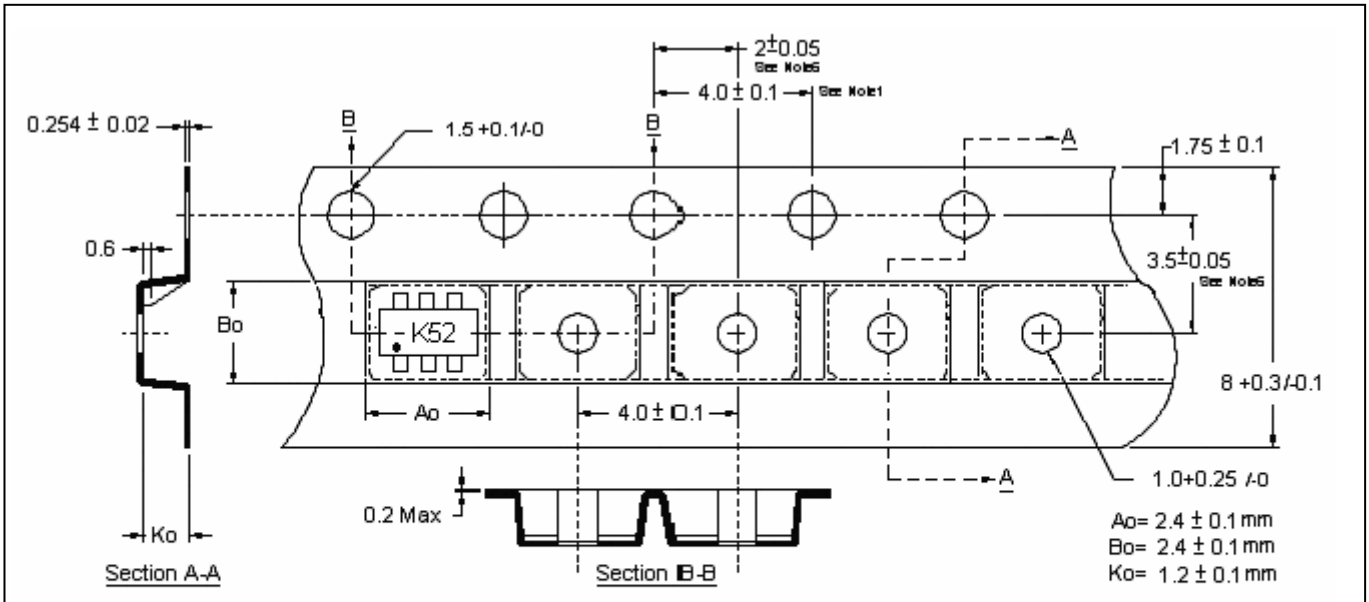
Capacitance vs Reverse Voltage



Reel Dimension



Carrier Tape Dimension



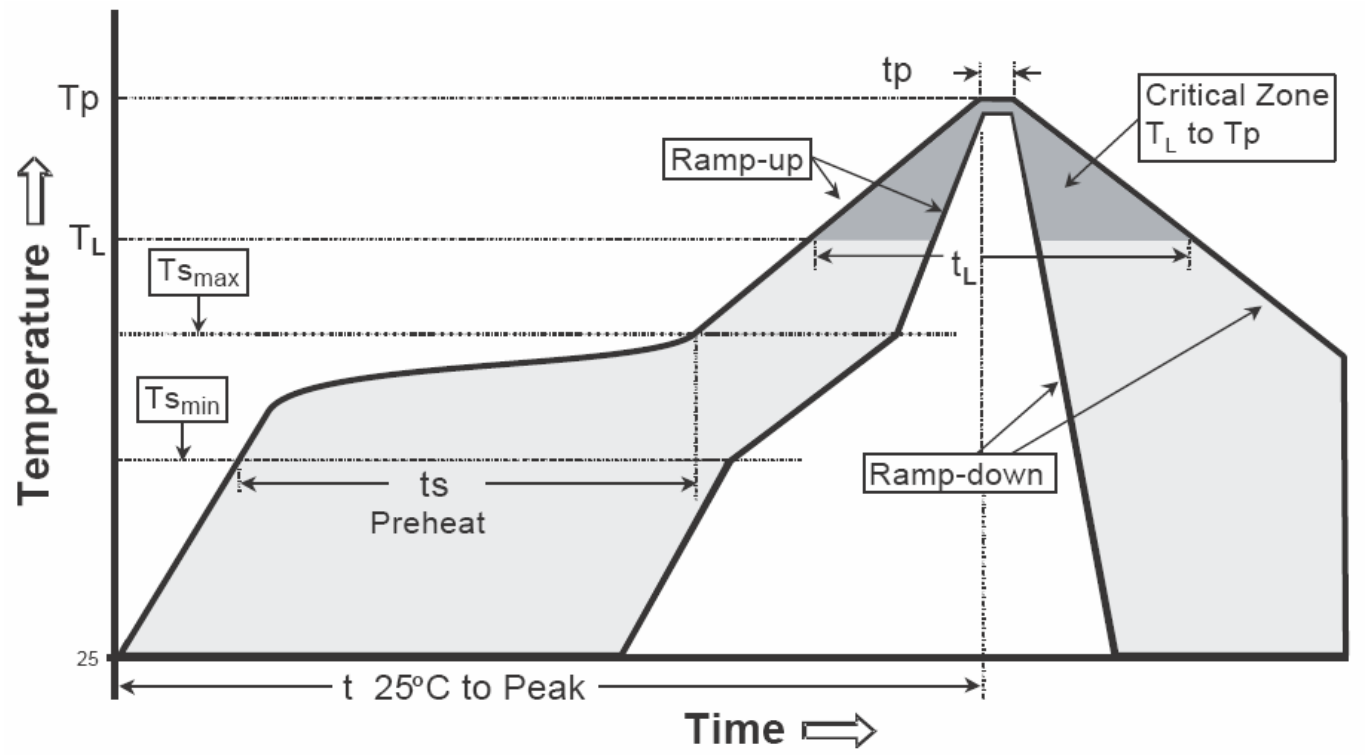
Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

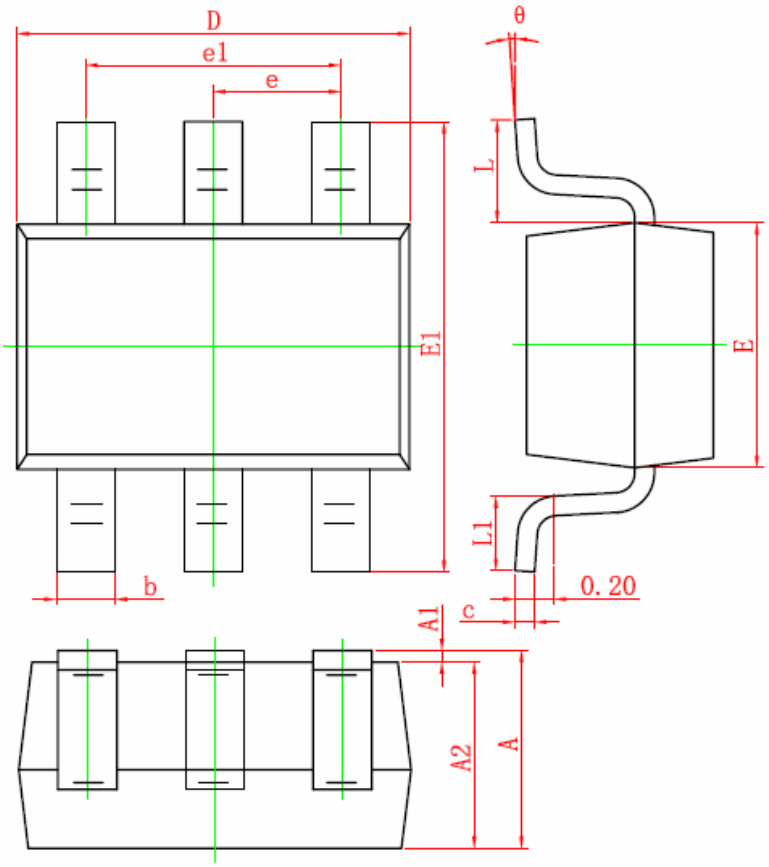
Recommended temperature profile for IR reflow



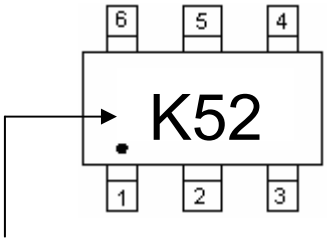
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-363 Dimension



Marking:



Device Code

6-Lead SOT-363R Plastic Surface Mounted Package
CYStek Package Code: S6R

Style:
Pin 1. Anode1 (A1)
Pin 2. Cathode1 (C1)
Pin 3. Anode/Cathode 2 (AC2)
Pin 4. Anode2 (A2)
Pin 5. Cathode2 (C2)
Pin 6. Anode/Cathode 1 (AC1)

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043	E1	2.150	2.450	0.085	0.096
A1	0.000	0.100	0.000	0.004	e	0.650 TYP		0.026 TYP	
A2	0.900	1.000	0.035	0.039	e1	1.200	1.400	0.047	0.055
b	0.150	0.350	0.006	0.014	L	0.525 REF		0.021 REF	
c	0.080	0.150	0.003	0.006	L1	0.260	0.460	0.010	0.018
D	2.000	2.200	0.079	0.087	θ	0°	8°	0°	8°
E	1.150	1.350	0.045	0.053					

Notes : 1.Controlling dimension : millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : Pure tin plated.
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.