

## APPLE - CM (AC)SOLID STATE RELAY



GENERAL	
Operating temperature	deg. C to 80 deg. C
Operating frequency	47 Hz to 63 Hz.
I / O Insulation	2 . 5 kV
I / O Isolation base	3 kV
Weight	@ 10 0 g
Dimensions(L x B x H )	60 x 46 x 26
LED ON indication	

### TECHNICAL DATA (@ TA = 25 °C)

INPUT	4 - 32 V D . C .			24 V A C .			90 - 240 V A C .		
	min	Max	U n i t	M i n	Max	U n i t	M i n	Max	U n i t
Input ON Voltage	3	32	V D . C .	19.2	28.8	V A C .	90	240	V A C .
Input OFF Voltage	1	1.5	V D . C .	11	12	V A C .	-	-	V A C .
Input Current	8	22	m A	8	22	m A	8	22	m A
INPUT IMPEDENCE	0.22	1.4	K O h m	-	-		-	-	
OUTPUT	SYM - B O L	ZEROSWITCHNG							UNIT
CONTNEOUS RMSCURRENT	$I_T$	10	15	25	40	50	75 **	90 **	A
LINE VOLTAGE MIN .		240/480	240/480	240/480	240/480	240/480	240/480	240/480	V A C .
LINE VOLTAGE MAX		24	24	24	24	24	24	24	V A C .
SYNCHRONIZING VOLTAGE		5 - 16	5 - 16	5 - 16	5 - 16	5 - 16	5 - 16	5 - 16	V P K
ON STATE VOLTAGE DROP MAX	$V_{TM}$	1.6	1.6	1.85	1.85	1.85	1.3	1.3	V R M S
PEAK ONE CYCLE SURGE ON STATE	$I_{TSM}$	90	125	240	300	470	600	800	A
LEAKAGE CURRENT MAX	$I_{DRM}$	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	7 - 10	2.0	m A
TURN OFF TIME (MAX FOR ZERO SWITCHING)	$T_{OFF}$	10	10	10	10	10	10	10	m s
RATE OF RISE OF OFF STATE VOLTAGE	$dV / dt$	200	200	200	200	150	150	150	V / s
HOLDING CURRENT	$I_{HO}$	75	75	75	75	75	75	75	m A
FUSING CURRENT	$I^2t$	72	110	312	450	500	720	850	A <sup>2</sup> s
THERMAL RESISTANCE (JUNCTION CASE)		3.4	2.3	1.5	1.2	0.7	0.7	0.4	° C / W

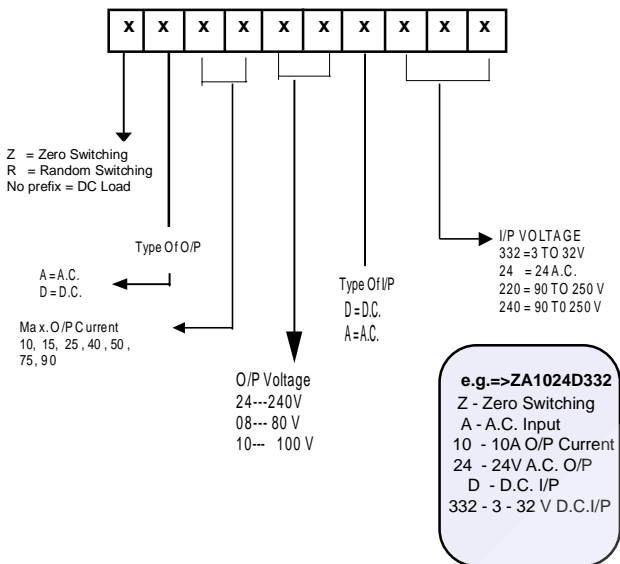
\* - We are manufacturing SSR's upto 200 Amp. For exports.

\*\* - Back to Back S.C.R.

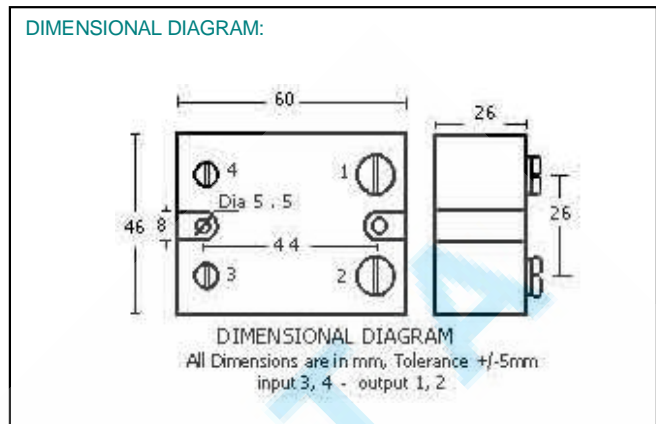
#### NOTE:

1. Ratings are based on single mounted unit in free air flow for closely packed units. Careful consideration of ambient temperature will be necessary on account of restricted airflow.
2. Use of metal oxide varistor for transient voltage protection, and semi conductor protection is recommended.
3. For load current above 3A, heat sink is to be used. To select heat sink, consult manufacturer.
4. Ensure correct input supply, relay operation may be erratic for inputs between 1-4VDC
5. For ordering information, please refer to the SOLID STATE RELAY SELECTION GUIDE  
**Specifications subjected to change without notice.**

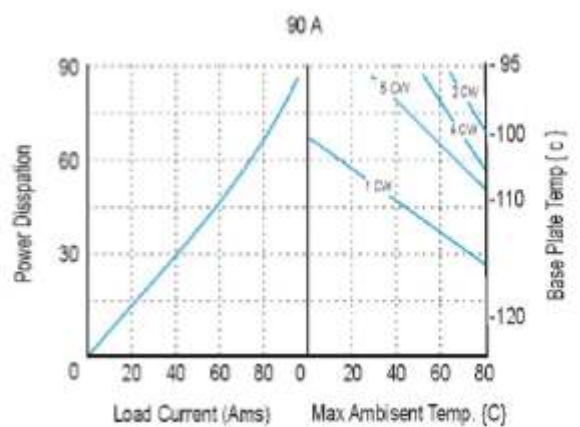
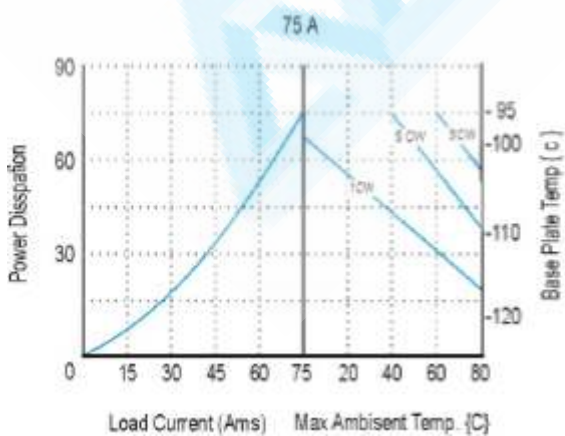
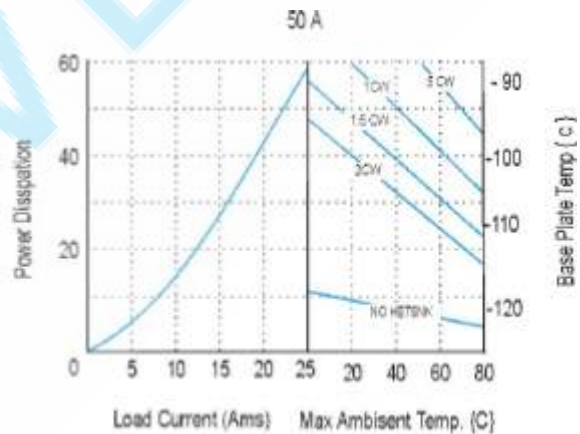
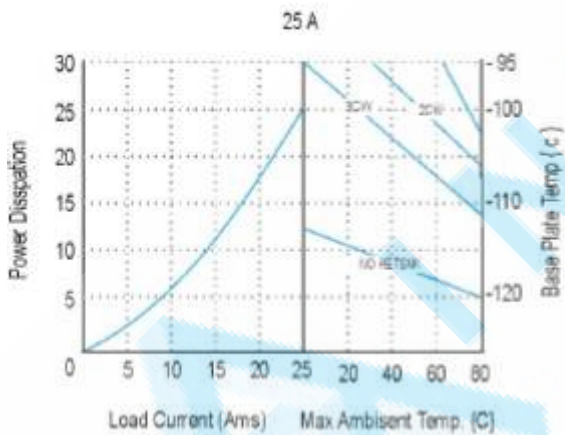
**SELECTION CRITERIA:**



**DIMENSIONAL DIAGRAM:**



**CURRENT DERATING CURVES**





## APPLE DC-DC SOLID STATE RELAYS

Latest technology generation.

- Ultra low on-state resistance.
- New innovative isolated driver ensuring fast power transistor turn on and off therefore low power transient.
- Ultra low output leakage current
- Low control current consumption triggered control input to avoid linear control risks
- Low conducted and radiated disturbances IGBT for switching High current High Voltage loads



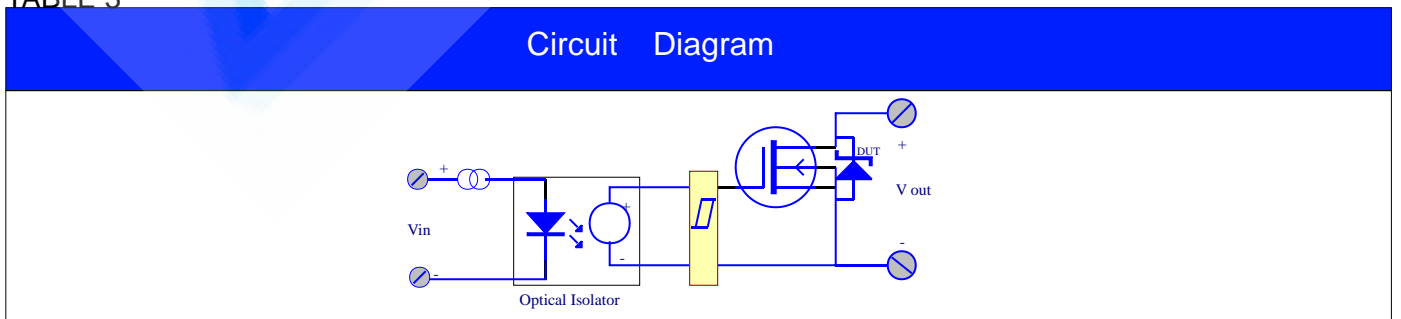
TABLE 1

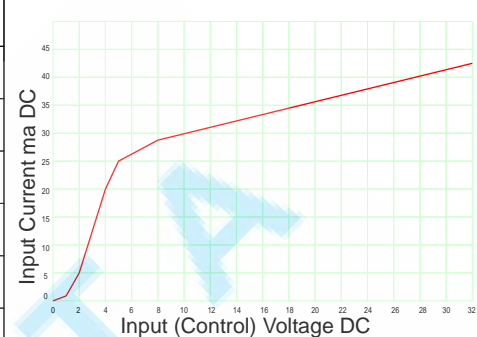
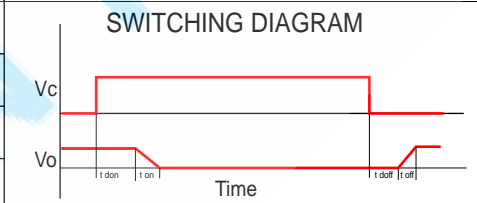
DC Mains Voltage Range	Load Current Range	Output Device	Control Input Voltage	Isolation
60 VDC (max) Depends on Clamping Protection	110 A DC ( with Heat Sink)	MOSFET	9-28VDC	2KV
200> VDC>1000	400 A DC	IGBT	9-28VDC	3KV

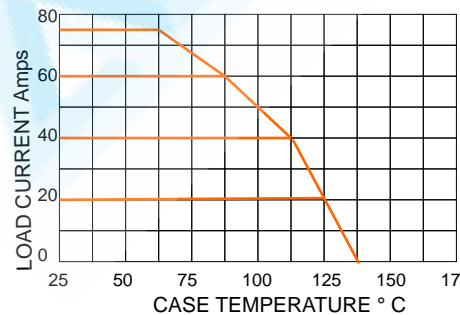
TABLE 2

Connection diagram (Load Connected to +Ve Side)	Connection diagram (Load Connected to - Ve Side)
<p>Please consult us to select correct protective components C1 , D1 , D2</p>	<p>Please consult us to select correct protective components C1 , D1 , D2</p>

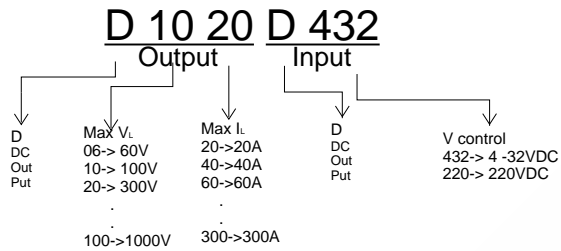
TABLE 3



INPUT PARAMETERS	Parameters	Unit	Value	Remark	Input Voltage Vs Input Current
	Working Input Voltage	V dc	9 - 28		
	Working Input Current	ma dc	14 - 35		
	Input Voltage Range	V dc	4 - 32	min 4.2V	
	Input Current Range	ma dc	10- 45	ref Graph	
	Releasing Input Voltage	V dc	< 1.2		
	Max. Reverse Voltage	V dc	-40		
	Impedence	R in	Current Limit	Ref Graph	
	Turn On Time	t on	10 uSecs		
	Turn ON Time Delay	t don	400uSecs		
Turn OFF Time	t off	10 u Secs			
Turn OFF Time Delay	t d off	120 uSecs			

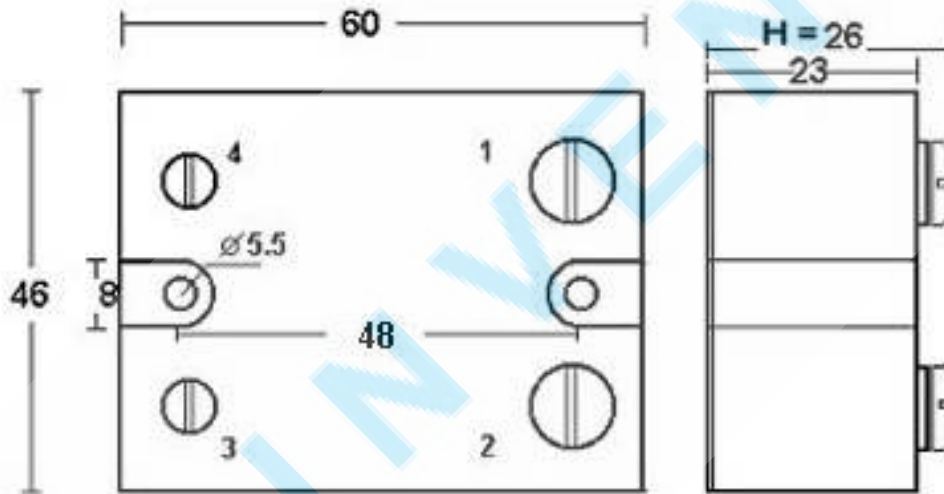
OUTPUT \ LOAD SIDE PARAMETERS	Parameters	Unit	Value	Remark
	Max Continuous DC Voltage	V DC	60 (MOSFET) / 1000(IGBT)	For Inductive Load Clamping needed
	Max. Non Repetative Voltage	V DC	75 (MOSFET)/ 1200 (IGBT)	Clamping Device Protection needed
	Over Voltage Protection		Not included external to be used	
	Reverse Max Voltage	V DC	< 1VDC	Due to reverse diode across 1 & 2
	Load Current ( Max)Resistive	Amps	10-100A / 100 - 400 DC	Refer Table 1, P-1 . Contact us for Inductive Loads
	OFF State Leakage Current	μ Amps	25 /500 μA	Current @ 30°C / 120°C
	Junction / Case Thermal Res.	R thjc	0.9°/ W	
	Isolation Input /Output	V AC	2KV / 4KV	
	Isolaion Body / Live terminals	V AC	4 KV	
Max Case Temperature	T c	95°C	Cooling with Heat sink/Air Flow design*	
			<ul style="list-style-type: none"> <li>&gt;Heat sink design is based on Current required &amp; switching duty cycle.</li> <li>&gt;Cooling is necessary if case temperature rises above 90°C. Cooling could be Forced air cooled or in extreme conditions water cooled.</li> <li>&gt;Rise in case temperature may result in malfunction of switching functions.</li> </ul>	

Ordering Information:



Example: D1020D432  
 Output -> 20ADC , Vload max 100VDC  
 Input -> 4 > Vin > 32

Dimensional Details



All Dimensions are in mm (millimeter)