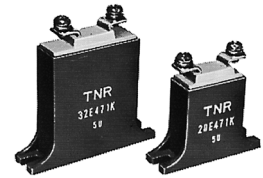


E Series



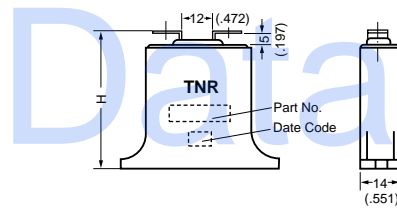
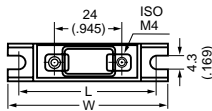
◆FEATURES

- Excellent clamping voltage characteristic and fast response time (<50nsec.) when subjected to impulse surges.
- No follow current.
- Any voltage rating within a V1mA range from 200V to 1,100V available. (V1mA : varistor voltage.)
- Bilateral and symmetrical V- I characteristics curve.
- The TNR can, therefore, be used both in AC and DC circuits, for protection of either positive or negative transients.
- Large withstanding peak current 8,000A-25,000A(8/20μSec.).

◆APPLICATIONS

- Protection of semiconductors such as transistors, diodes, ICs, thyristors, triacs, etc.
- Protection of various equipment including:
 - *Broadcasting, communications equipment.
 - *Traffic and railway signal systems.
 - *Automatic control devices for power distribution.
 - *Waterworks.
 - *Home entertainment equipment.
- Surge absorption of relays and electromagnetic valves.
- Absorption of surges generated within equipment such as TVs.

◆DIMENSIONS [mm (in.)]



Series	W	H	L
TNR 20E	48±1 (1.890±0.039)	42±1 (1.653±0.039)	39±1 (1.535±0.039)
TNR 32E	60±1 (2.362±0.039)	55±1 (2.165±0.039)	51±1 (2.008±0.039)

◆RATINGS

Model Number	Varistor Voltage at 1mA DC	Maximum Applied Voltage		Maximum Clamping Voltage	Rated Wattage	Maximum Peak Current	Energy	Typical Capacitance
		AC. (Vrms)	DC. (V)					
20E Series	V_{1mA} (V)	AC. (Vrms)	DC. (V)	V_{100A} (V)	(W)	8/20μs (A)	2ms (J)	1kHz (pF)
TNR20E221K	200 (198~ 242)	140	180	360	0.8	8,000/1 time	80	2,200
TNR20E241K	240 (216~ 264)	150	200	395			95	1,500
TNR20E271K	270 (243~ 297)	175	225	445			100	1,400
TNR20E391K	390 (351~ 429)	250	320	650			130	1,200
TNR20E431K	430 (387~ 473)	275	350	710			140	1,000
TNR20E471K	470 (423~ 517)	300	385	775			150	950
TNR20E511K	510 (459~ 561)	315	420	840		160	930	
TNR20E681K	680 (612~ 748)	420	560	1,120		175	850	
TNR20E751K	750 (675~ 825)	460	615	1,240		190	800	
TNR20E821K	820 (738~ 902)	510	670	1,355		215	700	
TNR20E911K	910 (819~1,001)	550	745	1,500		240	600	
TNR20E102K	1,000 (900~1,100)	625	825	1,650		245	400	
TNR20E112K	1,100 (990~1,210)	680	895	1,815	250	350		
32E Series	V_{1mA} (V)	AC. (Vrms)	DC. (V)	V_{200A} (V)	(W)	8/20μs (A)	2ms (J)	1kHz (pF)
TNR32E221K	200 (198~ 242)	140	180	360	1.2	25,000/1 time	200	5,500
TNR32E241K	240 (216~ 264)	150	200	395			240	4,800
TNR32E271K	270 (243~ 297)	175	225	445			260	4,200
TNR32E391K	390 (351~ 429)	250	320	650			350	3,500
TNR32E431K	430 (387~ 473)	275	350	710			400	2,700
TNR32E471K	470 (423~ 517)	300	385	775			410	2,600
TNR32E511K	510 (459~ 561)	315	420	840		420	2,400	
TNR32E681K	680 (612~ 748)	420	560	1,120		450	2,100	
TNR32E751K	750 (675~ 825)	460	615	1,240		500	2,000	
TNR32E821K	820 (738~ 902)	510	670	1,355		545	1,800	
TNR32E911K	910 (819~1,001)	550	745	1,500		600	1,700	
TNR32E102K	1,000 (900~1,100)	625	825	1,650		620	1,000	
TNR32E112K	1,100 (990~1,210)	680	895	1,815	640	800		

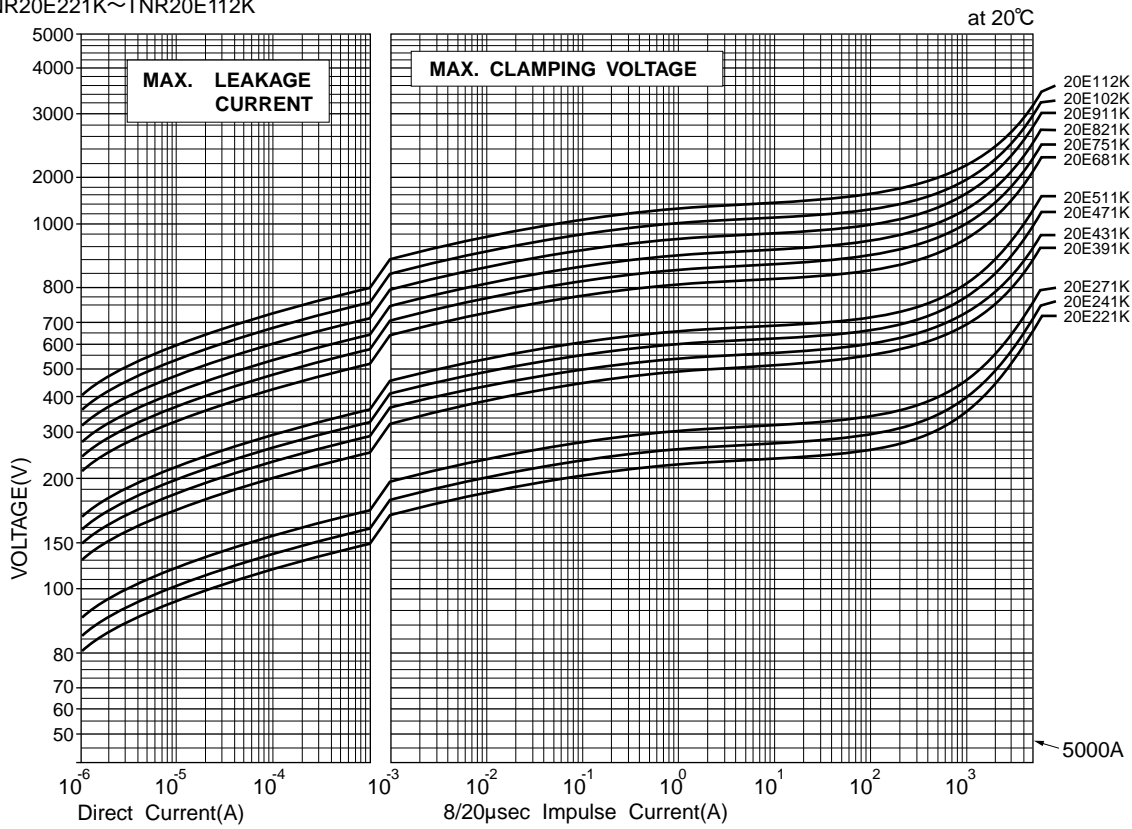
Operating Temperature Range -40~+85°C Storage Temperature Range -40~+110°C



E Series

◆V-I CURVE

●TNR20E221K~TNR20E112K



●TNR32E221K~TNR32E112K

