

DPAK-3 Surface Mount Package

These state-of-the-art devices are designed for use in switching power supplies, inverters and as free wheeling diodes.

Features

- Extremely Fast Switching
- Extremely Low Forward Drop
- Platinum Barrier with Avalanche Guardrings
- NRVBD and SBRV Prefixes for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free and are RoHS Compliant

Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 0.4 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- ESD Ratings:
 - Machine Model = C
 - ♦ Human Body Model = 3B



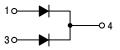
ON Semiconductor®

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SCHOTTKY BARRIER RECTIFIERS 6.0 AMPERES, 20 – 60 VOLTS



DPAK CASE 369C



MARKING DIAGRAM



A = Assembly Location*

Y = Year WW = Work Week B6x0T = Device Code x = 2, 3, 4, 5, or 6 G = Pb-Free Package

* The Assembly Location Code (A) is front side optional. In cases where the Assembly Location is stamped in the package bottom (molding ejecter pin), the front side assembly code may be blank.

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 5 of this data sheet.

MAXIMUM RATINGS

		MBRD/NRVBD/SBRV					
Rating	Symbol	620CT	630CT	640CT	650CT	660CT	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	20	30	40	50	60	V
Average Rectified Forward Current T _C = 130°C (Rated V _R) Per Diode Per Device	I _{F(AV)}	3 6				А	
Peak Repetitive Forward Current, T _C = 130°C (Rated V _R , Square Wave, 20 kHz) Per Diode	I _{FRM}	6				Α	
Nonrepetitive Peak Surge Current – (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I _{FSM}	75			Α		
Peak Repetitive Reverse Surge Current (2 μs, 1 kHz)	I _{RRM}	1			Α		
Operating Junction Temperature (Note 1)	TJ	-65 to +175			°C		
Storage Temperature	T _{stg}	-65 to +175			°C		
Voltage Rate of Change (Rated V _R)	dv/dt	10,000				V/μs	

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS PER DIODE

Characteristic		Value	Unit	
Maximum Thermal Resistance, Junction-to-Case	$R_{ heta JC}$	6	°C/W	
Maximum Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	80	°C/W	

^{2.} Rating applies when surface mounted on the minimum pad size recommended.

ELECTRICAL CHARACTERISTICS PER DIODE

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 3) $ \begin{aligned} &i_F = 3 \text{ Amps, } T_C = 25^{\circ}\text{C} \\ &i_F = 3 \text{ Amps, } T_C = 125^{\circ}\text{C} \\ &i_F = 6 \text{ Amps, } T_C = 25^{\circ}\text{C} \\ &i_F = 6 \text{ Amps, } T_C = 125^{\circ}\text{C} \end{aligned} $	V _F	0.7 0.65 0.9 0.85	V
Maximum Instantaneous Reverse Current (Note 3) (Rated dc Voltage, $T_C = 25^{\circ}C$) (Rated dc Voltage, $T_C = 125^{\circ}C$)	İR	0.1 15	mA

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

^{1.} The heat generated must be less than the thermal conductivity from Junction-to-Ambient: $dP_D/dT_J < 1/R_{\theta JA}$.

^{3.} Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

TYPICAL CHARACTERISTICS

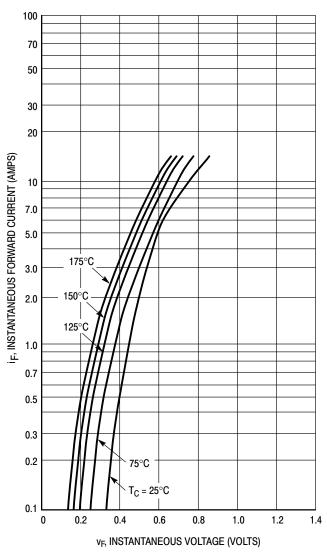
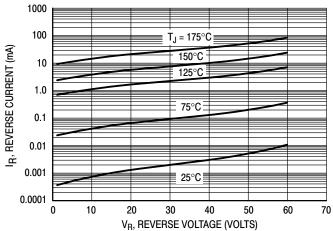


Figure 1. Typical Forward Voltage, Per Leg



*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these curves if V_R is sufficient below rated V_R .

Figure 2. Typical Reverse Current,* Per Leg

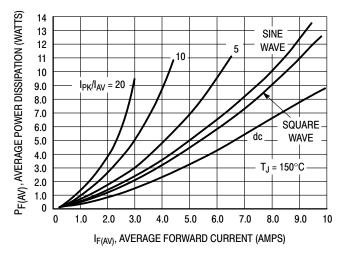


Figure 3. Average Power Dissipation, Per Leg

TYPICAL CHARACTERISTICS

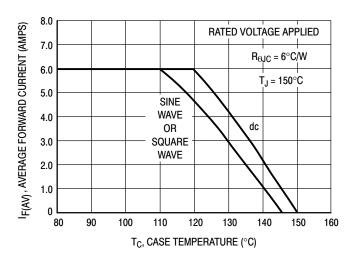


Figure 4. Current Derating, Case, Per Leg

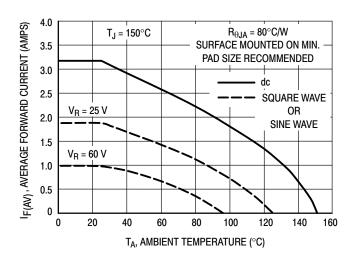


Figure 5. Current Derating, Ambient, Per Leg

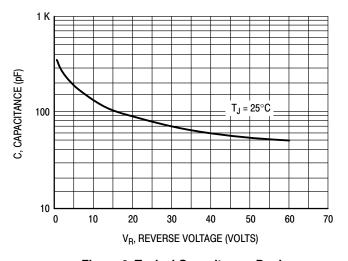


Figure 6. Typical Capacitance, Per Leg

ORDERING INFORMATION

Device	Package	Shipping [†]			
MBRD620CTT4G		2500 / Tape & Reel			
MBRD630CTT4G		2500 / Tape & Reel			
MBRD640CTG		75 Units / Rail			
NRVBD640CTG*		75 Units / Rail			
NRVBD640CTG-VF01*		75 Units / Rail			
MBRD640CTT4G		2500 / Tape & Reel			
NRVBD640CTT4G*		2500 / Tape & Reel			
NRVBD640VCTT4G*		2500 / Tape & Reel			
SBRV640VCTT4G*		2500 / Tape & Reel			
MBRD650CTG		75 Units / Rail			
MBRD650CTT4G		2500 / Tape & Reel			
NRVBD650CTG-VF01*	DPAK (Pb-Free)	2500 / Tape & Reel			
NRVBD650CTT4G*	(FD-11ee)	2500 / Tape & Reel 2500 / Tape & Reel			
NRVBD650CTT4G-VF01*					
MBRD660CTG		75 Units / Rail			
NRVBD660CTG*	1	75 Units / Rail			
NRVBD660CTG-VF01*		75 Units / Rail			
MBRD660CTRLG		1800 / Tape & Reel			
NRVBD660CTRLG*		1800 / Tape & Reel			
MBRD660CTT4G		2500 / Tape & Reel			
NRVBD660CTT4G*		2500 / Tape & Reel			
SBRV660VCTT4G*		2500 / Tape & Reel			
SNRVBD660CTT4G*		2500 / Tape & Reel			

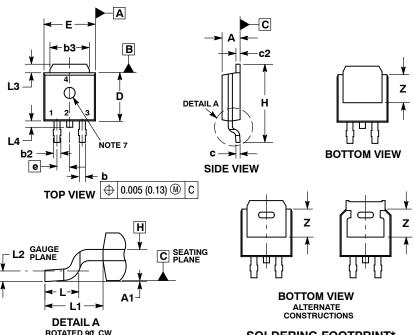
[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.
*NRVBD and SBRV Prefixes for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101

Qualified and PPAP Capable.

PACKAGE DIMENSIONS

DPAK (SINGLE GAUGE)

CASE 369C ISSUE F



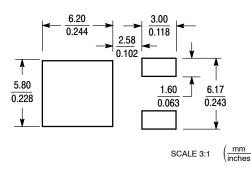
- OTLS.

 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.

 2. CONTROLLING DIMENSION: INCHES.
- 3. THERMAL PAD CONTOUR OPTIONAL WITHIN DI-
- MENSIONS b3, L3 and Z.
 4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.006 INCHES PER SIDE.
 5. DIMENSIONS D AND E ARE DETERMINED AT THE
- OUTERMOST EXTREMES OF THE PLASTIC BODY.
- 6. DATUMS A AND B ARE DETERMINED AT DATUM
- 7. OPTIONAL MOLD FEATURE.

	INC	HES	MILLIN	IETERS		
DIM	MIN	MAX	MIN	MAX		
Α	0.086	0.094	2.18	2.38		
A1	0.000	0.005	0.00	0.13		
b	0.025	0.035	0.63	0.89		
b2	0.028	0.045	0.72	1.14		
b3	0.180	0.215	4.57	5.46		
С	0.018	0.024	0.46	0.61		
c2	0.018	0.024	0.46	0.61		
D	0.235	0.245	5.97	6.22		
E	0.250	0.265	6.35	6.73		
е	0.090	BSC	2.29	BSC		
Н	0.370	0.410	9.40	10.41		
L	0.055	0.070	1.40	1.78		
L1	0.114 REF		2.90 REF			
L2	0.020	BSC	0.51	0.51 BSC		
L3	0.035	0.050	0.89	1.27		
L4		0.040		1.01		
Z	0.155		3.93			

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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