

Miniature, 1W Isolated REGULATED DC/DC CONVERTERS

FEATURES

- UL1950 RECOGNIZED
- DIP-18, SO-28
- 53W/in³ (3.3W/cm³) POWER DENSITY
- DEVICE-TO-DEVICE SYNCHRONIZATION
- THERMAL PROTECTION
- 1000Vrms ISOLATION
- 400kHz SWITCHING
- 125 FITS AT 55°C
- +10% INPUT RANGE
- SHORT-CIRCUIT PROTECTED
- 5V, 12V, 24V INPUTS
- 3.3V, 5V OUTPUTS
- HIGH EFFICIENCY

APPLICATIONS

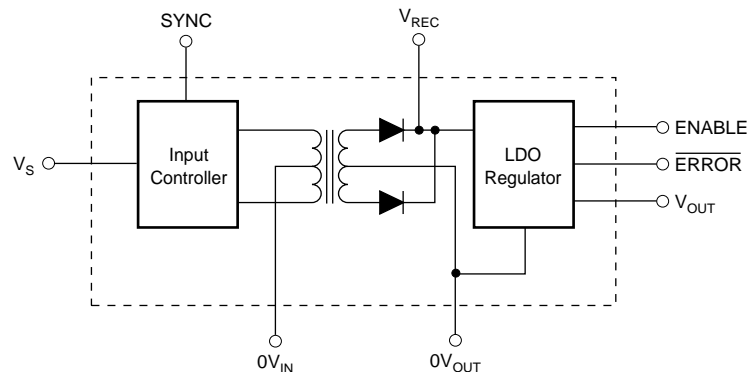
- POINT-OF-USE POWER CONVERSION
- DIGITAL INTERFACE POWER
- GROUND LOOP ELIMINATION
- POWER-SUPPLY NOISE REDUCTION

DESCRIPTION

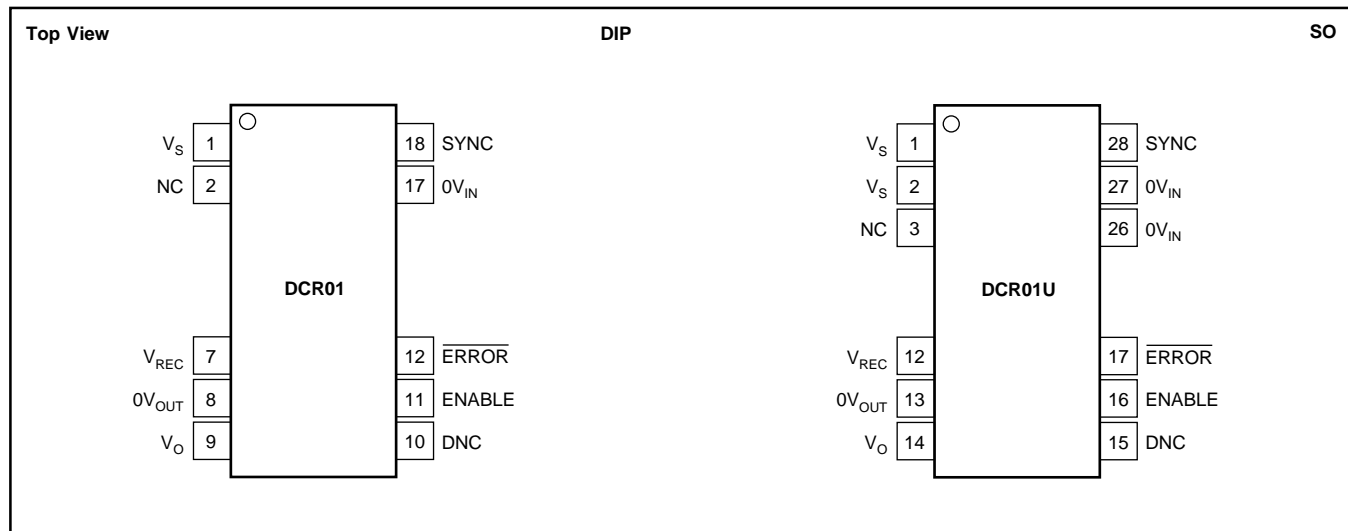
The DCR01 family is a series of high-efficiency, input-isolated, output-regulated DC/DC converters. In addition to 1W nominal, galvanically-isolated output power capability, this range of DC/DCs offer very low output noise, thermal protection, and high accuracy.

The DCR01 family is implemented in standard molded IC packaging, giving standard JEDEC outlines suitable for high-volume assembly.

The DCR01 is manufactured using the same technology as standard IC packages, thereby achieving very high reliability.



PIN CONFIGURATIONS



PIN DEFINITION (DIP)

PIN #	PIN NAME	DESCRIPTION
1	V _S	Voltage Input
2	NC	No Connection
7	V _{REC}	Rectified Output
8	OV _{OUT}	Output Ground
9	V _O	Voltage Output
10	DNC	Do Not Connect
11	ENABLE	Output Voltage Enable
12	ERROR	Error Flag Active Low
17	OV _{IN}	Input Ground
18	SYNC	Synchronization Input

PIN DEFINITION (SO)

PIN #	PIN NAME	DESCRIPTION
1	V _S	Voltage Input
2	V _S	Voltage Input
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27	OV _{IN}	Input Ground
28	SYNC	Synchronization Input

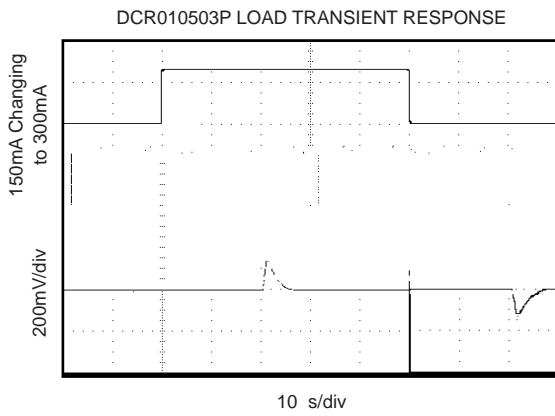
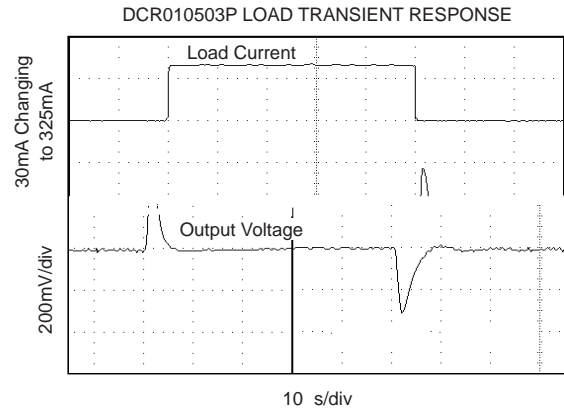
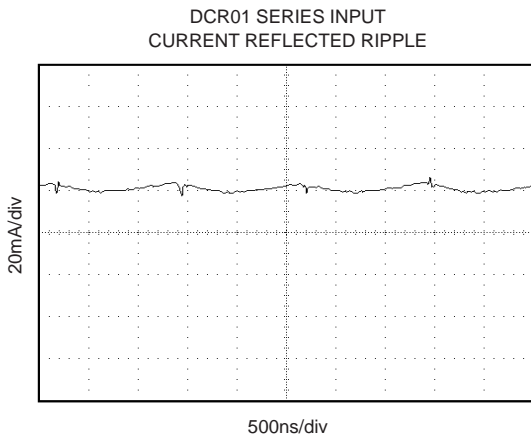
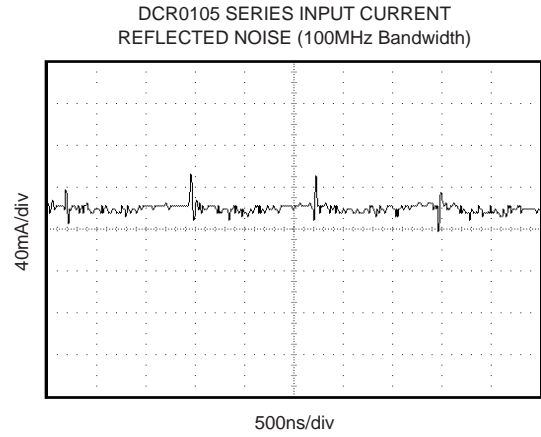
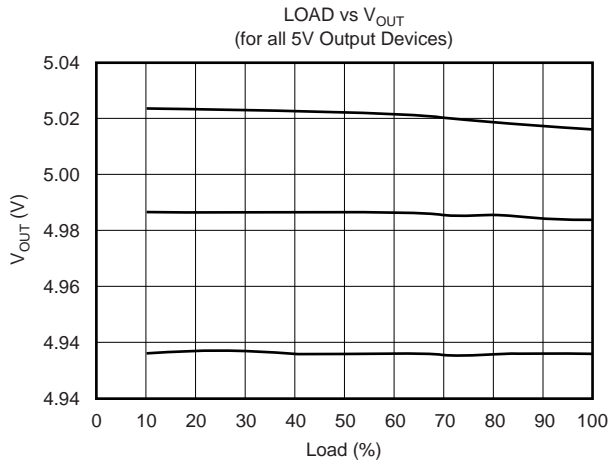


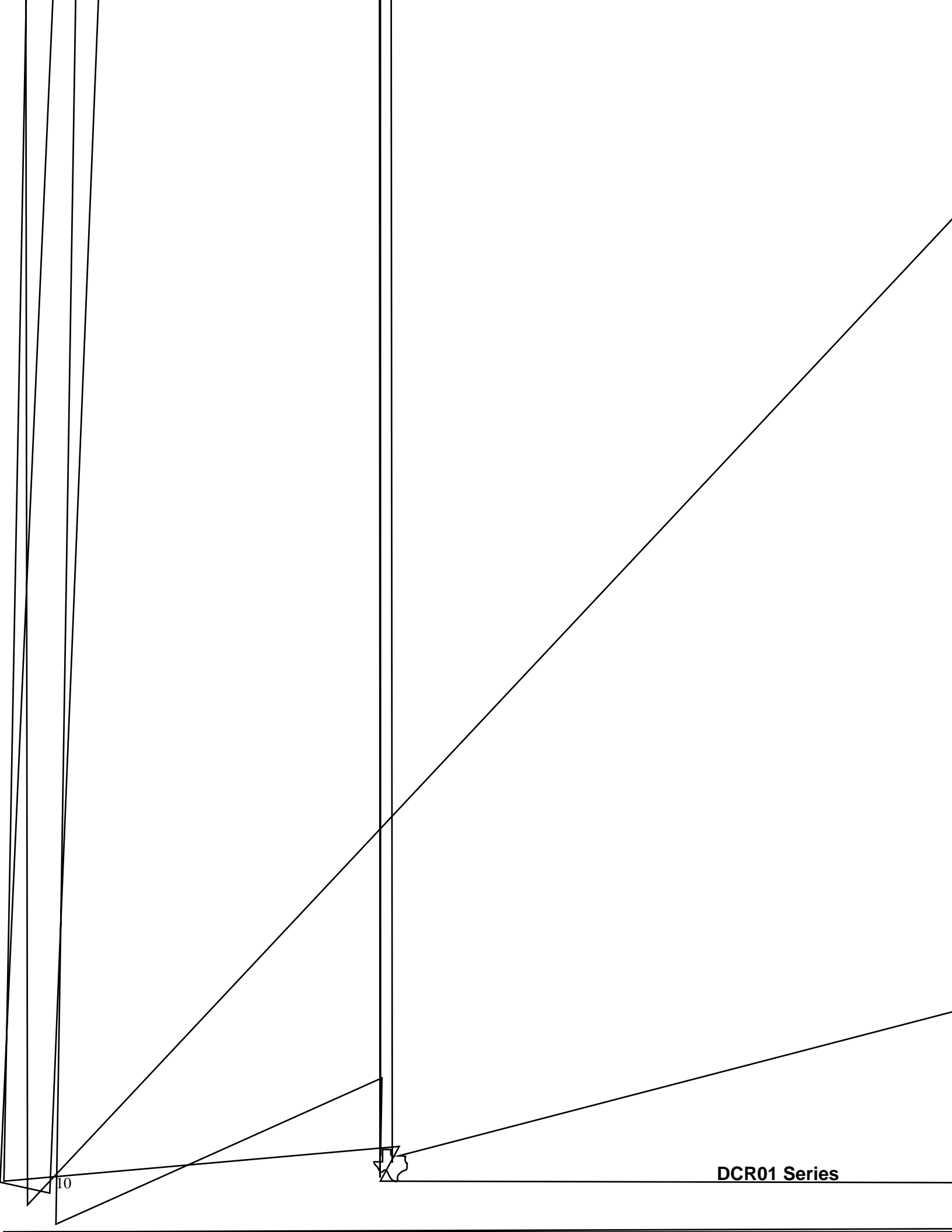
TYPICAL CHARACTERISTICS (Cont.)

At $T_A = +25^\circ\text{C}$, $V_S = 5\text{V}$, $I_O = 10\text{mA}$, $C_{\text{FILTER}} = 1\text{ F}$, $C_O = 0.1$

TYPICAL CHARACTERISTICS (Cont.)

At $T_A = +25^\circ\text{C}$, $V_S = 5\text{V}$, $I_O = 10\text{mA}$, $C_{\text{FILTER}} = 1\text{ F}$, $C_O = 0.1\text{ F}$, unless otherwise specified.

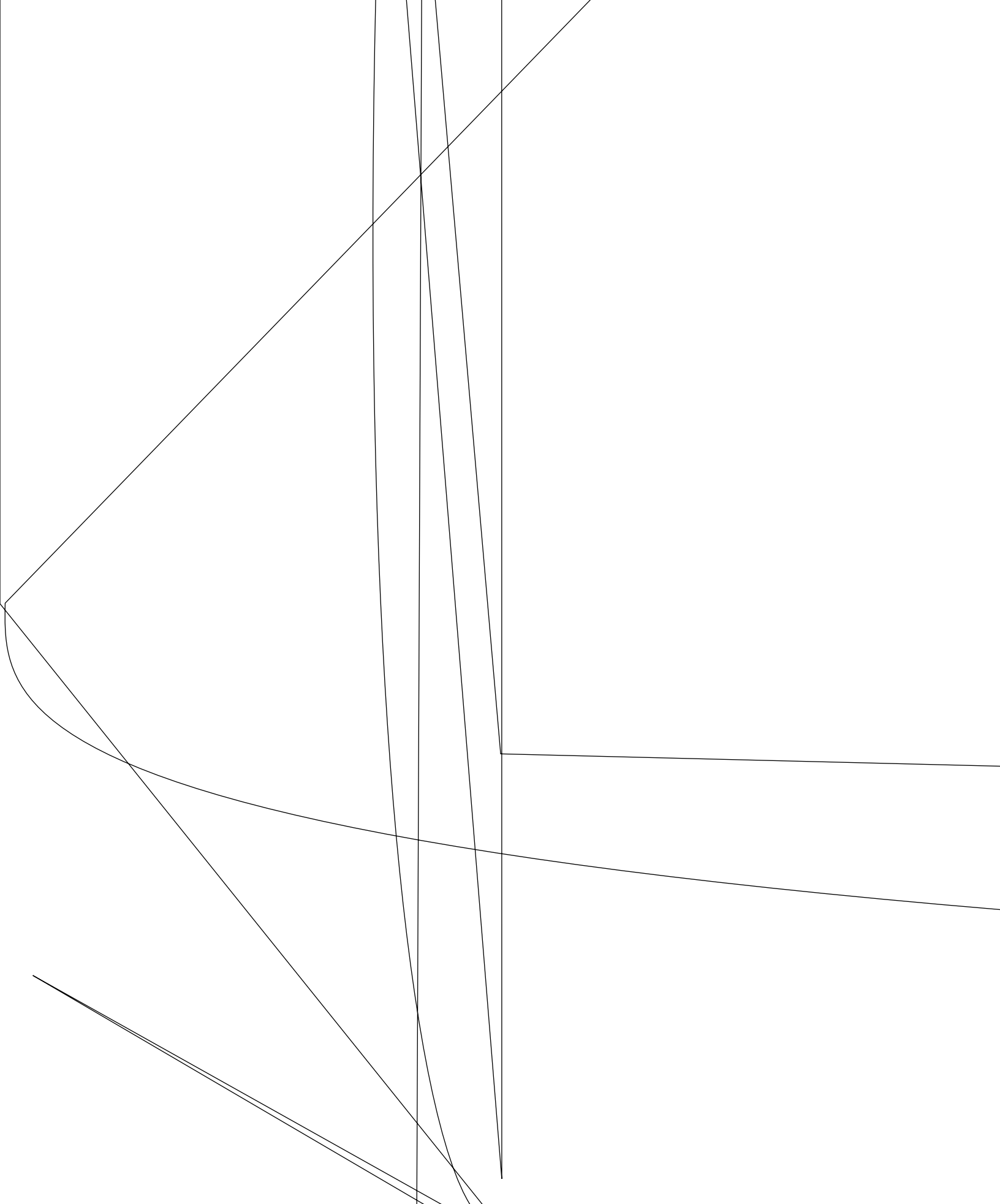




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DCR01 Series



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DCR01 Series

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/ Ball Finish	MSL Peak Temp ⁽³⁾	Samples (Requires Login)
DCR010503P	ACTIVE	PDIP	NVE	10	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	Request Free Samples
DCR010503U	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR010503U/1K	ACTIVE	SOP	DVB	12	1000	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Purchase Samples
DCR010503UE4	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR010505P	ACTIVE	PDIP	NVE	10	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	Request Free Samples
DCR010505U	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR010505U/1K	ACTIVE	SOP	DVB	12	1000	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Purchase Samples
DCR010505U/1KE4	ACTIVE	SOP	DVB	12	1000	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Purchase Samples
DCR010505UE4	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR011203P	ACTIVE	PDIP	NVE	10	20	TBD	CU NIPDAU	Level---	Request Free Samples
DCR011203U	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR011203U/1K	ACTIVE	SOP	DVB	12	1000	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Purchase Samples
DCR011203U/1KE4	ACTIVE	SOP	DVB	12	1000	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Purchase Samples
DCR011203UE4	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR011205P	ACTIVE	PDIP	NVE	10	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	Request Free Samples
DCR011205U	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR011205U/1K	ACTIVE	SOP	DVB	12	1000	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Purchase Samples
DCR011205U/1KE4	ACTIVE	SOP	DVB	12	1000	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Purchase Samples
DCR011205UE4	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR012403P	ACTIVE	PDIP	NVE	10	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	Request Free Samples
DCR012403U	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR012405P	ACTIVE	PDIP	NVE	10	20	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	Request Free Samples
DCR012405U	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples
DCR012405U/1K	ACTIVE	SOP	DVB	12	1000	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Purchase Samples
DCR012405U/1KE4	ACTIVE	SOP	DVB	12	1000	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Purchase Samples
DCR012405UE4	ACTIVE	SOP	DVB	12	28	Pb-Free (RoHS)	CU NIPDAU	Level-3-260C-168 HR	Request Free Samples

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

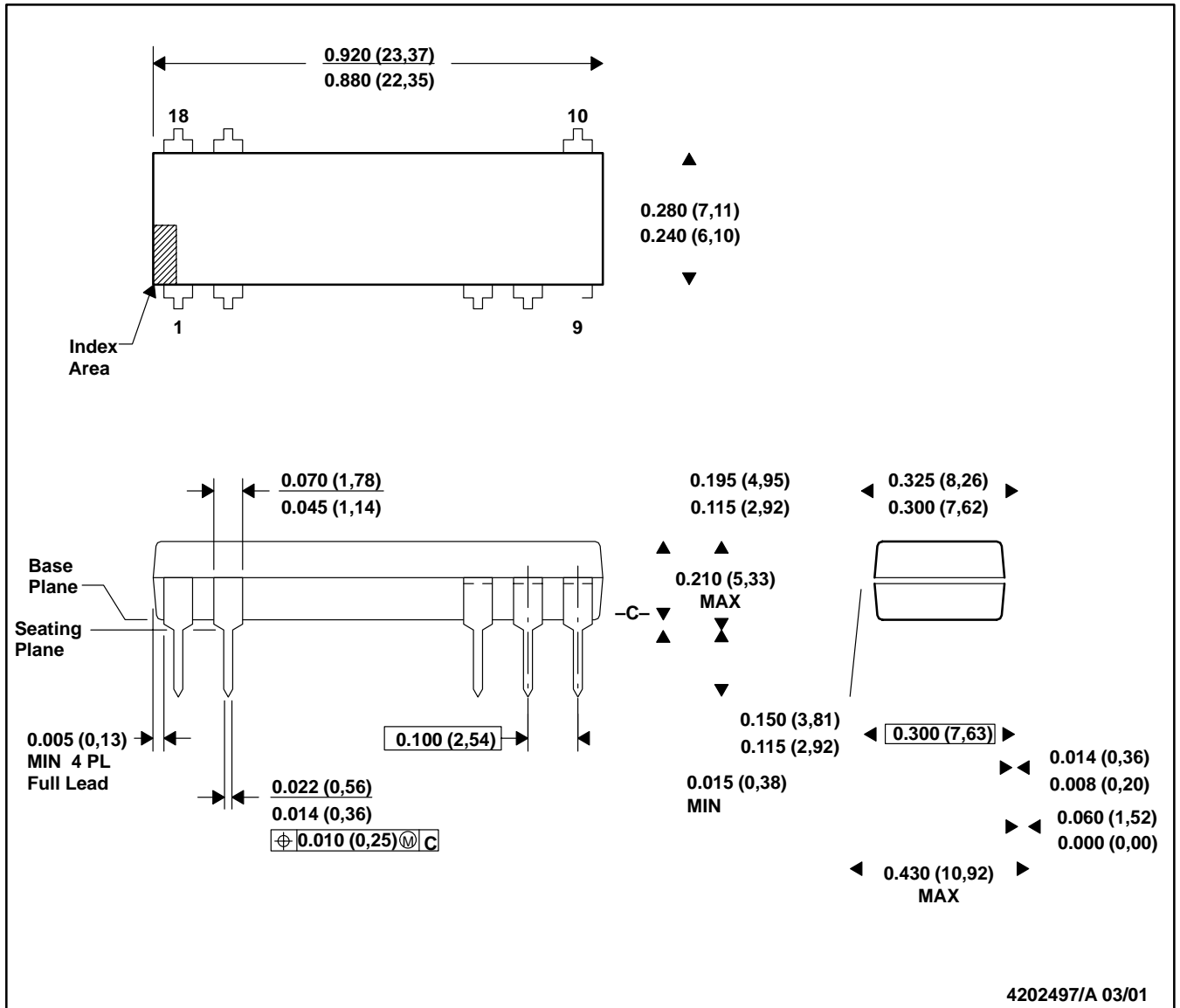
Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

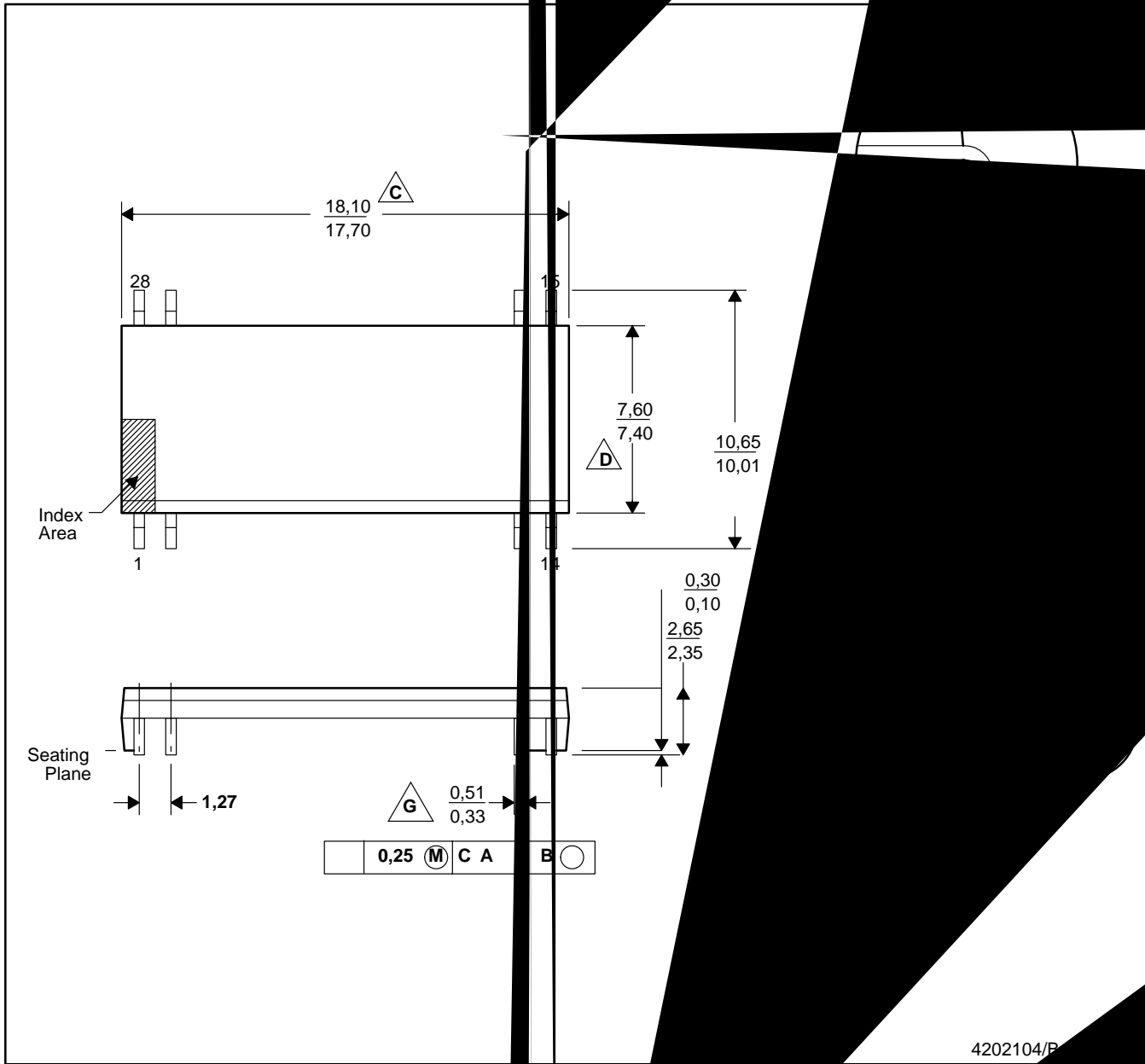
Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and ur 25.25 (flip-cbm [(Green) () 1.F1 8 Tf .25 (flip-cbm [n6r/ apromto)tible),) () 1se [(2)] TJ ET Q90 cm7discontinued flip-cbm

NVE (R-PDIP-T10/18)

PLASTIC DUAL-IN-LINE





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