NTD4302

MOSFET – Power, N-Channel, DPAK/IPAK
68 A, 30 V

Features

- Ultra Low $R_{DS(on)}$
- Higher Efficiency Extending Battery Life
- Logic Level Gate Drive
- Diode Exhibits High Speed, Soft Recovery
- Avalanche Energy Specified
- I_{DSS} Specified at Elevated Temperature
- DPAK Mounting Information Provided
- These Devices are Pb−Free and are RoHS Compliant

Applications

- DC−DC Converters
- Low Voltage Motor Control
- Power Management in Portable and Battery Powered Products: i.e., Computers, Printers, Cellular and Cordless Telephones, and PCMCIA Cards

MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Drain−to−Source Voltage	V_{DSS}	30	Vdc
Gate−to−Source Voltage − Continuous	V_{GS}	±20	Vdc
Thermal Resistance − Junction−to−Case Total Power Dissipation @ T_C = 25°C Continuous Drain Current @ T_C = 25°C (Note 4) Continuous Drain Current @ T_C = 100°C	$R_{\theta JC}$ P_D I_D I_D	1.65 75 68 43	°C/W W A A
Thermal Resistance − Junction−to−Ambient (Note 2) Total Power Dissipation @ T_A = 25°C Continuous Drain Current @ T_A = 25°C Continuous Drain Current @ T_A = 100°C Pulsed Drain Current (Note 3)	$R_{\theta JA}$ P_D I_D I_D I_{DM}	67 1.87 11.3 7.1 36	°C/W W A A A
Thermal Resistance − Junction−to−Ambient (Note 1) Total Power Dissipation @ T_A = 25°C Continuous Drain Current @ T_A = 25°C Continuous Drain Current @ T_A = 100°C Pulsed Drain Current (Note 3)	$R_{\theta JA}$ P_D I_D I_D I_{DM}	120 1.04 8.4 5.3 28	°C/W W A A A
Operating and Storage Temperature Range	T_J, T_{stg}	−55 to 150	°C
Single Pulse Drain−to−Source Avalanche Energy − Starting T_J = 25°C (V_{DD} = 30 Vdc, V_{GS} = 10 Vdc, Peak I_L = 17 Apk, L = 5.0 mH, R_G = 25 Ω)	E_{AS}	722	mJ
Maximum Lead Temperature for Soldering Purposes, 1/8 in from case for 10 seconds	T_L	260	°C

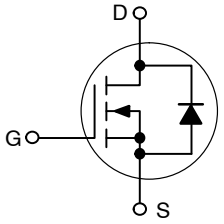
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. When surface mounted to an FR4 board using the minimum recommended pad size.
2. When surface mounted to an FR4 board using 0.5 sq. in. drain pad size.
3. Pulse Test: Pulse Width = 300 μs, Duty Cycle = 2%.
4. Current Limited by Internal Lead Wires.

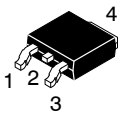
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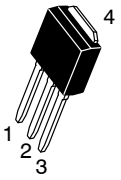
$V_{(BR)DSS}$	$R_{DS(on)}$ TYP	I_D MAX
30 V	7.8 mΩ @ 10 V	68 A



N−Channel

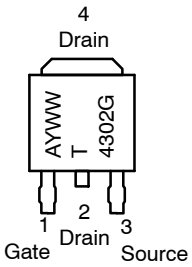


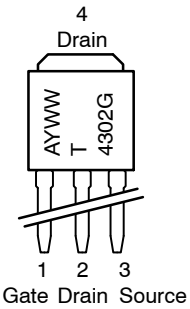
DPAK
CASE 369C
(Surface Mount)
STYLE 2



IPAK
CASE 369D
(Straight Lead)
STYLE 2

MARKING DIAGRAMS & PIN ASSIGNMENTS





A	= Assembly Location*
Y	= Year
WW	= Work Week
T4302	= Device Code
G	= Pb−Free Package

* The Assembly Location code (A) is front side optional. In cases where the Assembly Location is stamped in the package, 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.

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ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain−Source Breakdown Voltage		$V_{(BR)DSS}$				Vdc
(V_{GS} = 0 Vdc, I_D = 250 μA)			30	–	–	
Positive Temperature Coefficient			–	25	–	mV/°C
Zero Gate Voltage Drain Current		I_{DSS}				μAdc
(V_{GS} = 0 Vdc, V_{DS} = 30 Vdc, T_J = 25°C)			–	–	1.0	
(V_{GS} = 0 Vdc, V_{DS} = 30 Vdc, T_J = 125°C)			–	–	10	
Gate−Body Leakage Current (V_{GS} = ±20 Vdc, V_{DS} = 0 Vdc)		I_{GSS}	–	–	±100	nAdc
ON CHARACTERISTICS						
Gate Threshold Voltage		$V_{GS(th)}$				Vdc
(V_{DS} = V_{GS}, I_D = 250 μAdc)			1.0	1.9	3.0	
Negative Temperature Coefficient			–	−3.8	–	
Static Drain−Source On−State Resistance		$R_{DS(on)}$				Ω
(V_{GS} = 10 Vdc, I_D = 20 Adc)			–	0.0078	0.010	
(V_{GS} = 10 Vdc, I_D = 10 Adc)			–	0.0078	0.010	
(V_{GS} = 4.5 Vdc, I_D = 5.0 Adc)			–	0.010	0.013	
Forward Transconductance (V_{DS} = 15 Vdc, I_D = 10 Adc)		gFS	–	20	–	Mhos
DYNAMIC CHARACTERISTICS						
Input Capacitance	(V_{DS} = 24 Vdc, V_{GS} = 0 Vdc, f = 1.0 MHz)	C_{iss}	–	2050	2400	pF
Output Capacitance		C_{oss}	–	640	800	
Reverse Transfer Capacitance		C_{rss}	–	225	310	
SWITCHING CHARACTERISTICS (Note 6)						
Turn−On Delay Time	(V_{DD} = 25 Vdc, I_D = 1.0 Adc, V_{GS} = 10 Vdc, R_G = 6.0 Ω)	$t_{d(on)}$	–	11	20	ns
Rise Time		t_r	–	15	25	
Turn−Off Delay Time		$t_{d(off)}$	–	85	130	
Fall Time		t_f	–	55	90	
Turn−On Delay Time	(V_{DD} = 25 Vdc, I_D = 1.0 Adc, V_{GS} = 10 Vdc, R_G = 2.5 Ω)	$t_{d(on)}$	–	11	20	ns
Rise Time		t_r	–	13	20	
Turn−Off Delay Time		$t_{d(off)}$	–	55	90	
Fall Time		t_f	–	40	75	
Turn−On Delay Time	(V_{DD} = 24 Vdc, I_D = 20 Adc, V_{GS} = 10 Vdc, R_G = 2.5 Ω)	$t_{d(on)}$	–	15	–	ns
Rise Time		t_r	–	25	–	
Turn−Off Delay Time		$t_{d(off)}$	–	40	–	
Fall Time		t_f	–	58	–	
Gate Charge	(V_{DS} = 24 Vdc, I_D = 2.0 Adc, V_{GS} = 10 Vdc)	Q_T	–	55	80	nC
		Q_{gs} (Q1)	–	5.5	–	
		Q_{gd} (Q2)	–	15	–	
BODY−DRAIN DIODE RATINGS (Note 5)						
Diode Forward On−Voltage		V_{SD}				Vdc
(I_S = 2.3 Adc, V_{GS} = 0 Vdc)			–	0.75	1.0	
(I_S = 20 Adc, V_{GS} = 0 Vdc)			–	0.90	–	
(I_S = 2.3 Adc, V_{GS} = 0 Vdc, T_J = 125°C)			–	0.65	–	
Reverse Recovery Time	(I_S = 2.3 Adc, V_{GS} = 0 Vdc, dI_S/dt = 100 A/μs)	t_{rr}	–	39	65	ns
		t_a	–	20	–	
		t_b	–	19	–	
Reverse Recovery Stored Charge		Q_{rr}	–	0.043	–	μC

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.

5. Indicates Pulse Test: Pulse Width = 300 μsec max, Duty Cycle ≤ 2%.
6. Switching characteristics are independent of operating junction temperature.

TYPICAL CHARACTERISTICS

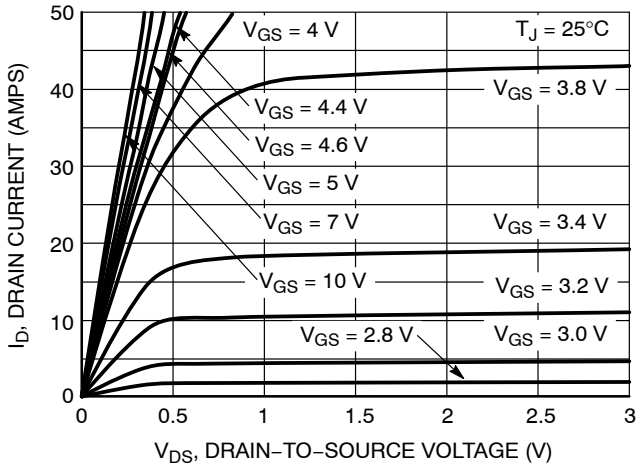


Figure 1. On−Region Characteristics

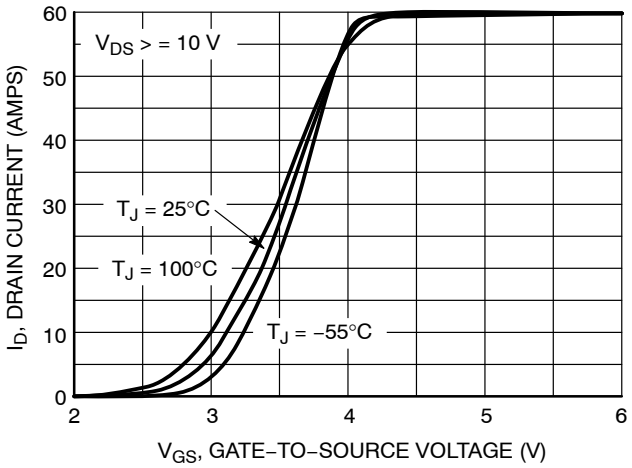


Figure 2. Transfer Characteristics

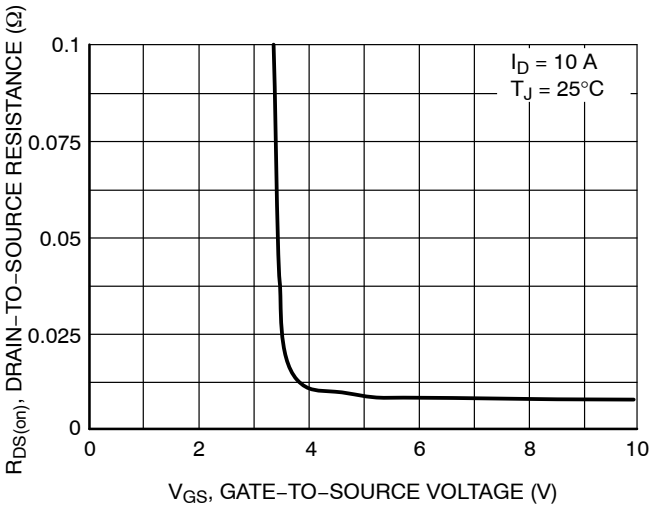


Figure 3. On−Resistance vs. Gate−To−Source Voltage

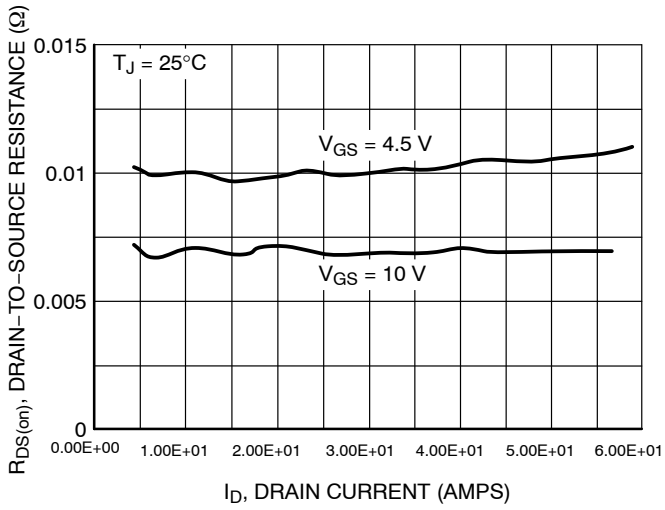


Figure 4. On−Resistance vs. Drain Current and Gate Voltage

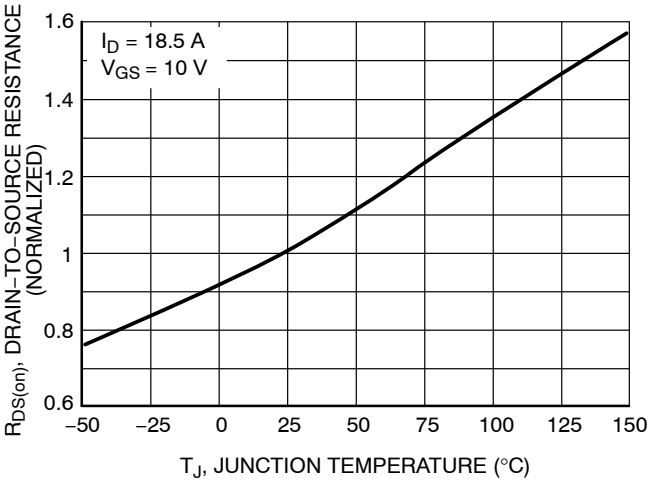


Figure 5. On−Resistance Variation with Temperature

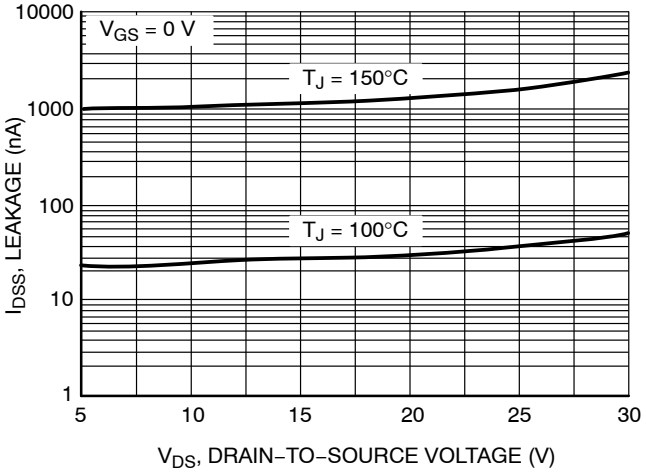


Figure 6. Drain−To−Source Leakage Current vs. Voltage

TYPICAL CHARACTERISTICS

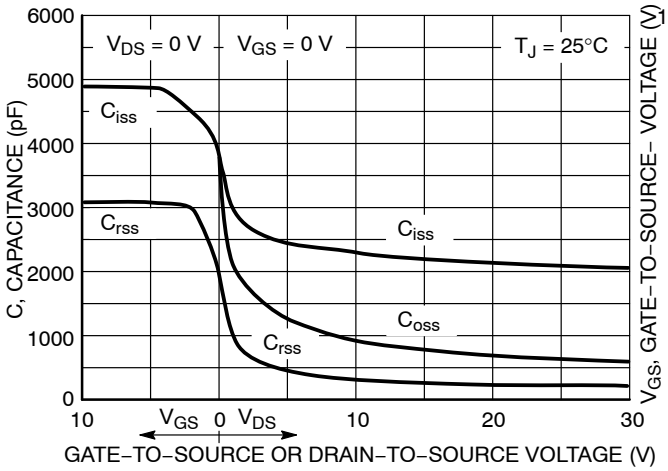


Figure 7. Capacitance Variation

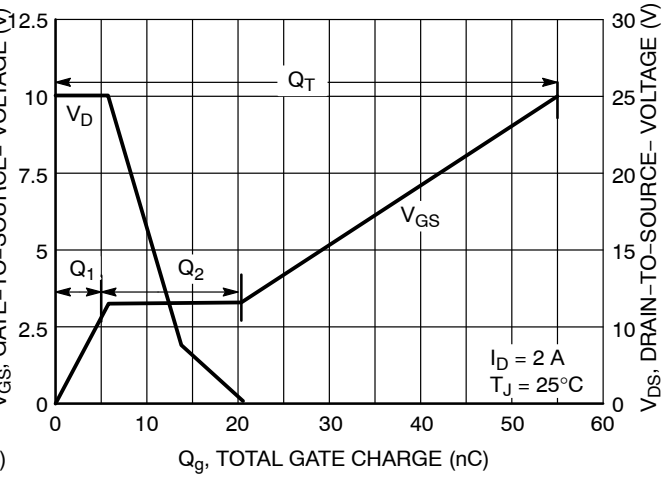


Figure 8. Gate−to−Source and Drain−to−Source Voltage vs. Total Charge

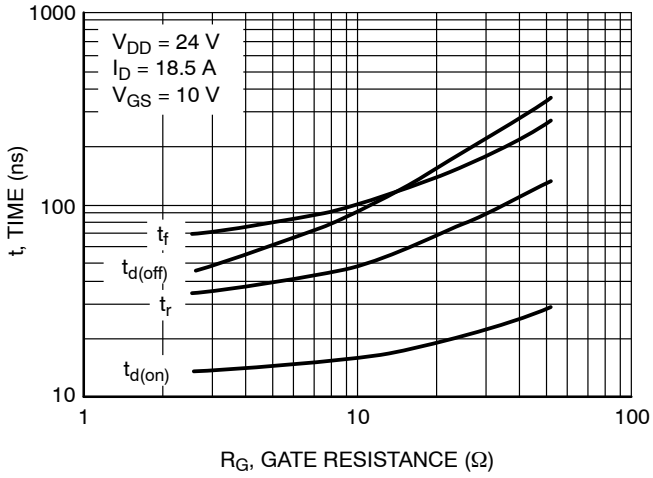


Figure 9. Resistive Switching Time Variation vs. Gate Resistance

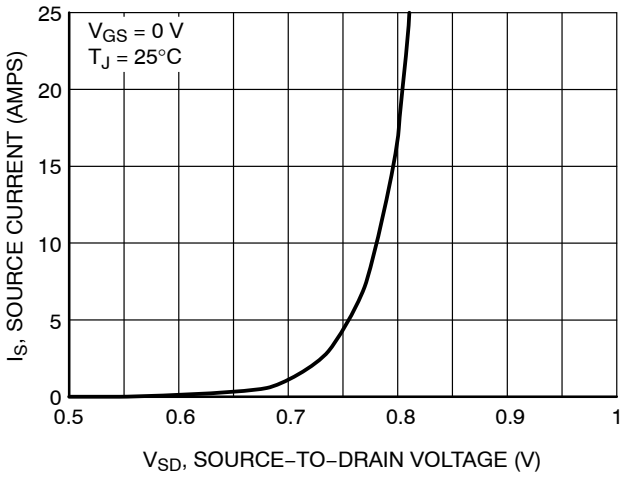


Figure 10. Diode Forward Voltage vs. Current

TYPICAL CHARACTERISTICS

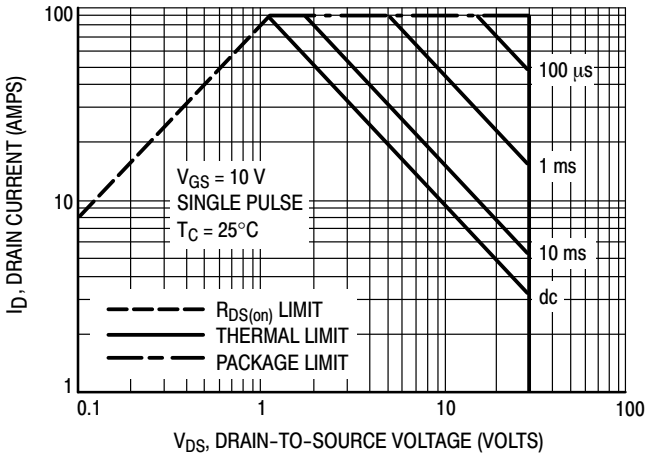


Figure 11. Maximum Rated Forward Biased Safe Operating Area

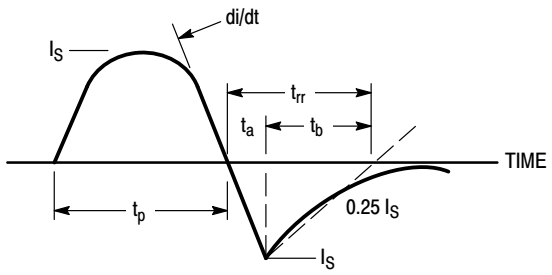


Figure 12. Diode Reverse Recovery Waveform

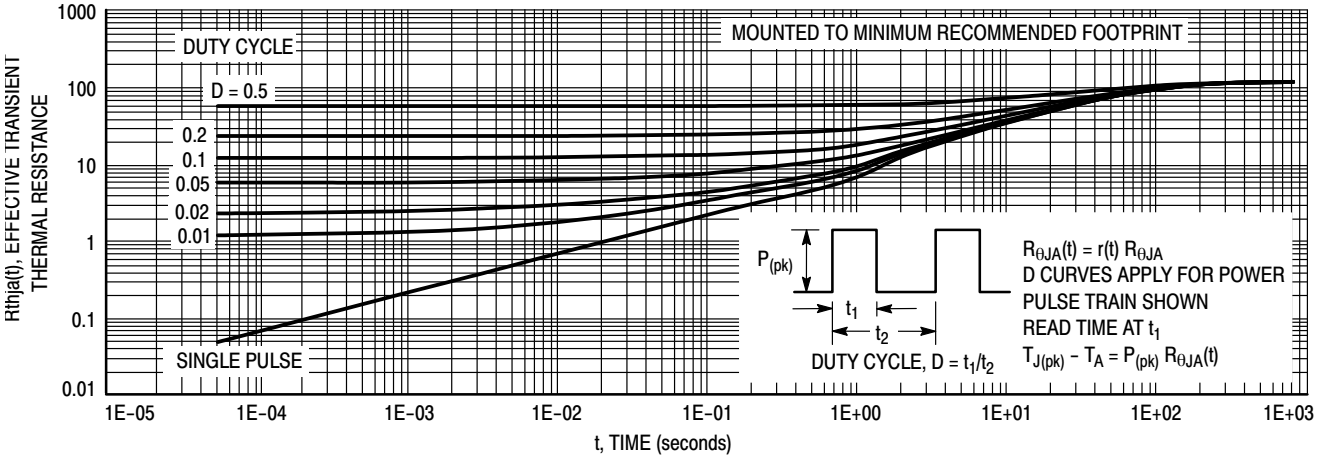
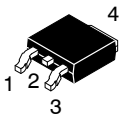


Figure 13. Thermal Response − Various Duty Cycles

ORDERING INFORMATION

Device	Package Type	Package	Shipping†
NTD4302G	DPAK	369C (Pb−Free)	75 Units / Rail
NTD4302−1G	IPAK	369D (Pb−Free)	75 Units / Rail
NTD4302T4G	DPAK	369C (Pb−Free)	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.



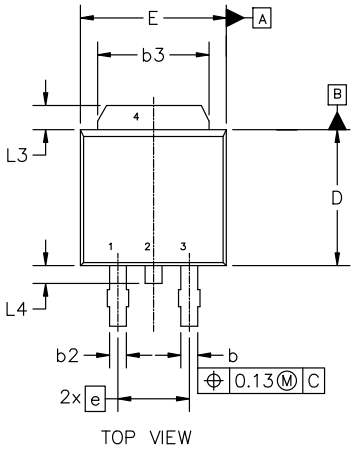
SCALE 1:1

DPAK−3 6.10x6.54x2.28, 2.29P
CASE 369AA
ISSUE C

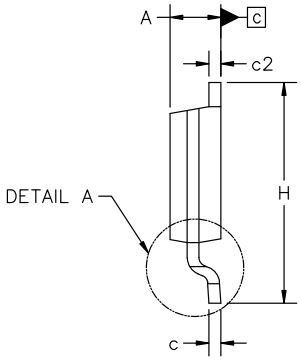
DATE 14 MAY 2026

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	2.18	2.28	2.38
A1	0.00	−−−	0.13
b	0.63	0.76	0.89
b2	0.76	0.95	1.14
b3	4.57	5.02	5.46
c	0.46	0.54	0.61
c2	0.46	0.54	0.61
D	5.97	6.10	6.22
E	6.35	6.54	6.73
e	2.29 BSC		
H	9.40	9.91	10.41
L	1.40	1.59	1.78
L1	2.74 REF		
L2	0.51 BSC		
L3	0.89	−−−	1.27
L4	−−−	−−−	1.01
Z	3.93	−−−	−−−

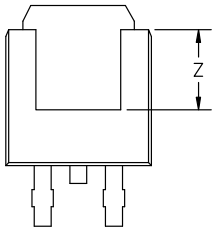
NOTES
1. DIMENSION AND TOLERANCING PER ASME Y14.5 2018
2. CONTROLLING DIMENSION: MILLIMETERS
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSION b3, L3, AND Z
4. DIMENSION D AND E DO NOT INCLUDED MOLD FLASH, PROTRUSION, OR BURRS.
5. DIMENSION D AND E ARE DETERMINED AT OUTERMOST EXTREMES OF THE PLASTIC BODY.
6. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H



TOP VIEW

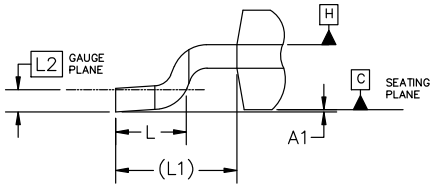


SIDE VIEW

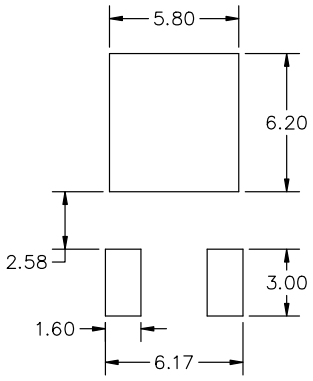


TOP VIEW

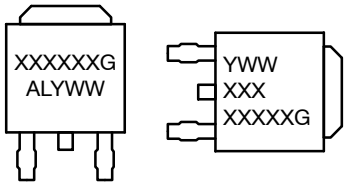
RECOMMENDED
MOUNTING FOOTPRINT



DETAIL A
ROTATED 90° CW



GENERIC
MARKING DIAGRAM*



IC **Discrete**

XXXXXX	= Device Code
A	= Assembly Location
L	= Wafer Lot
Y	= Year
WW	= Work Week
G	= Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

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DESCRIPTION:	**DPAK−3 6.10x6.54x2.28, 2.29P**	**PAGE 1 OF 1**

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Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

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Kategorilere göz atın

Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

Üreticileri görün

Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

Teklif isteyin

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