

N-Channel 30V Trench MOSFET

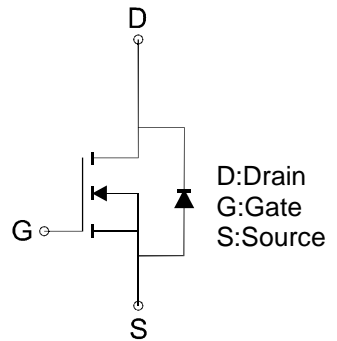
General Description

The LCS32N03A is the N-Channel logic enhancement mode field effect transistors. These devices are particularly suited for low voltage application such as cellular phone, notebook, computer power management and other battery powered circuits, and low in-line power loss that are needed in a very small outline surface mount package.

$B_{VDSS}=30V$,
 $R_{DS(ON)} \leq 32m\Omega @ V_{GS}=10V$
 $R_{DS(ON)} \leq 38m\Omega @ V_{GS}=4.5V$
 $R_{DS(ON)} \leq 50m\Omega @ V_{GS}=2.5V$
 $I_D=5.38A$

Features

- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Marking: W FAG
- Moisture Sensitivity Level 3 per J-STD-020
- Weight:0.013g
- Qualified to MIL-STD-750E
- RoHS Compliant



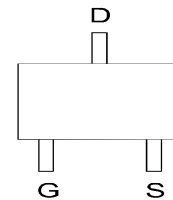
N-Channel MOSFET



Application

- Power Management
- DC/DC Converter
- Power Management NoteBook
- Battery Powered System
- Load Switch
- LCD Display inverter

(SOT-23)
Top View



Absolute Maximum Ratings ($T_A=25^\circ C$ Unless Otherwise Noted)

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	$T_A=25^\circ C$	5.38
		$T_A=70^\circ C$	4.30
Pulsed Drain Current	I_{DM}	21.5	A
Power Dissipation	P_D	$T_A=25^\circ C$	1.39
		$T_A=70^\circ C$	0.89
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$

Thermal Characteristics

PARAMETER	SYMBOL	TYP	UNIT
Thermal Resistance Junction-to-Ambient ¹	R_{thJA}	90	$^\circ C / W$

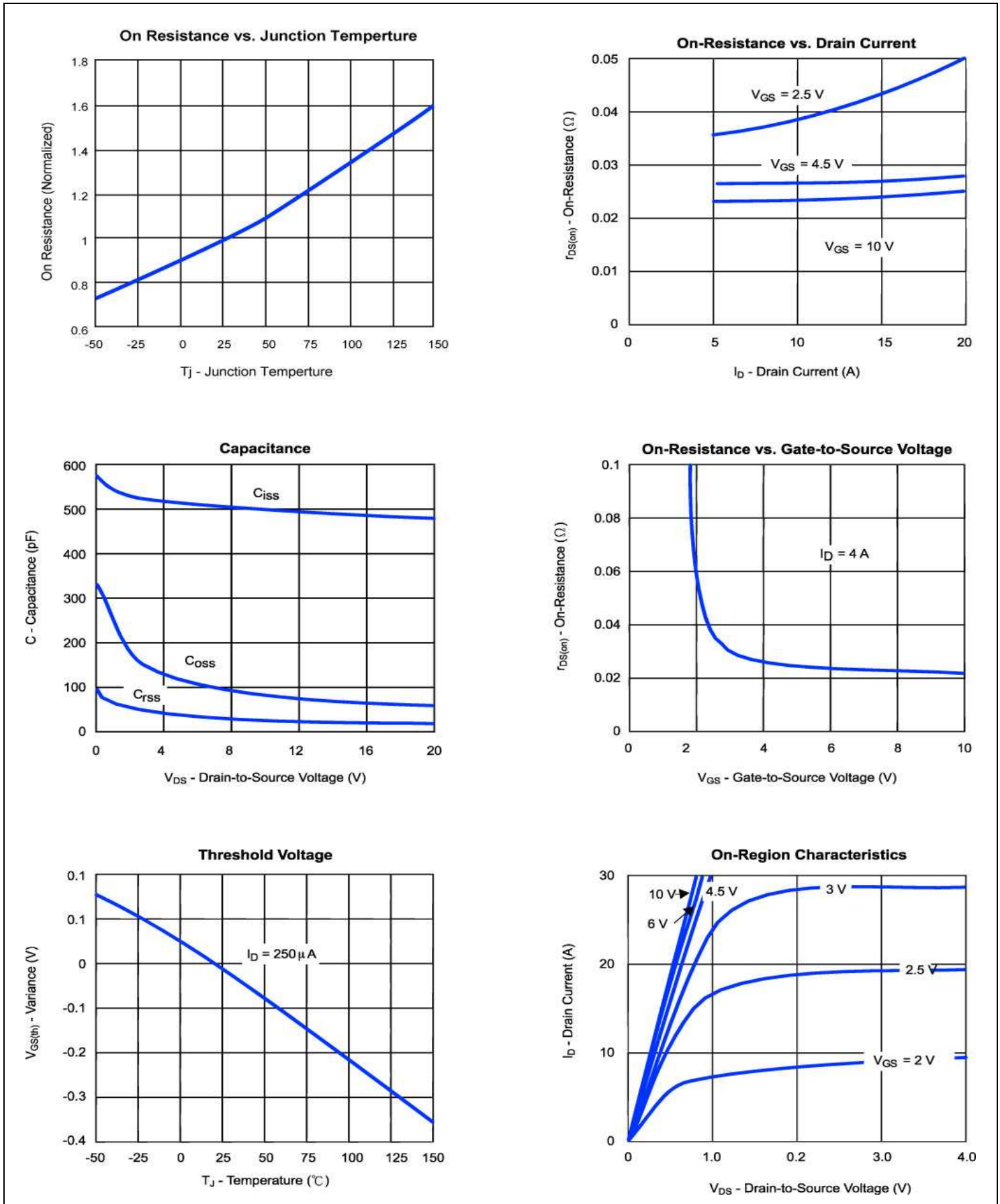
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Electrical Characteristics ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP	MAX	UNIT
STATIC						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	30	--	--	V
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	0.7	--	1.4	V
Gate-Source Leakage	$V_{DS}=0V, V_{GS}=\pm 12V$	I_{GSS}	--	--	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	I_{DSS}	--	--	1	μA
Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=4A$	$R_{DS(ON)}$	--	25	32	m Ω
	$V_{GS}=4.5V, I_D=3.5A$		--	29	38	
	$V_{GS}=2.5V, I_D=2.8A$		--	39	50	
DYNAMIC						
Total Gate Charge	$V_{GS}=10V, V_{DS}=15V, I_D=4A$	Q_g	--	15.5	--	nC
Gate-Source Charge		Q_{gs}	--	3.2	--	
Gate-Drain Charge		Q_{gd}	--	3.5	--	
Gate Resistance	$F=1\text{MHz}$	R_g	--	0.7	--	Ω
Input Capacitance	$V_{GS}=0V, V_{DS}=15V, F=1\text{MHz}$	C_{iss}	--	480	--	pF
Output Capacitance		C_{oss}	--	70	--	
Reverse Transfer Capacitance		C_{rss}	--	18	--	
Turn-On Delay Time	$V_{GS} = 10V, V_{DS} = 15V, R_G = 6\Omega, R_L=15\Omega, I_D=1A$	$t_{d(on)}$	--	8.5	--	nS
Turn-On Rise Time		t_r	--	17	--	
Turn-Off Delay Time		$t_{d(off)}$	--	31	--	
Turn-Off Fall Time		t_f	--	3	--	
Source-Drain Diode						
Diode Forward voltage	$I_{SD}=1.25A, V_{GS}=0V$	V_{SD}	--	0.8	1.2	V

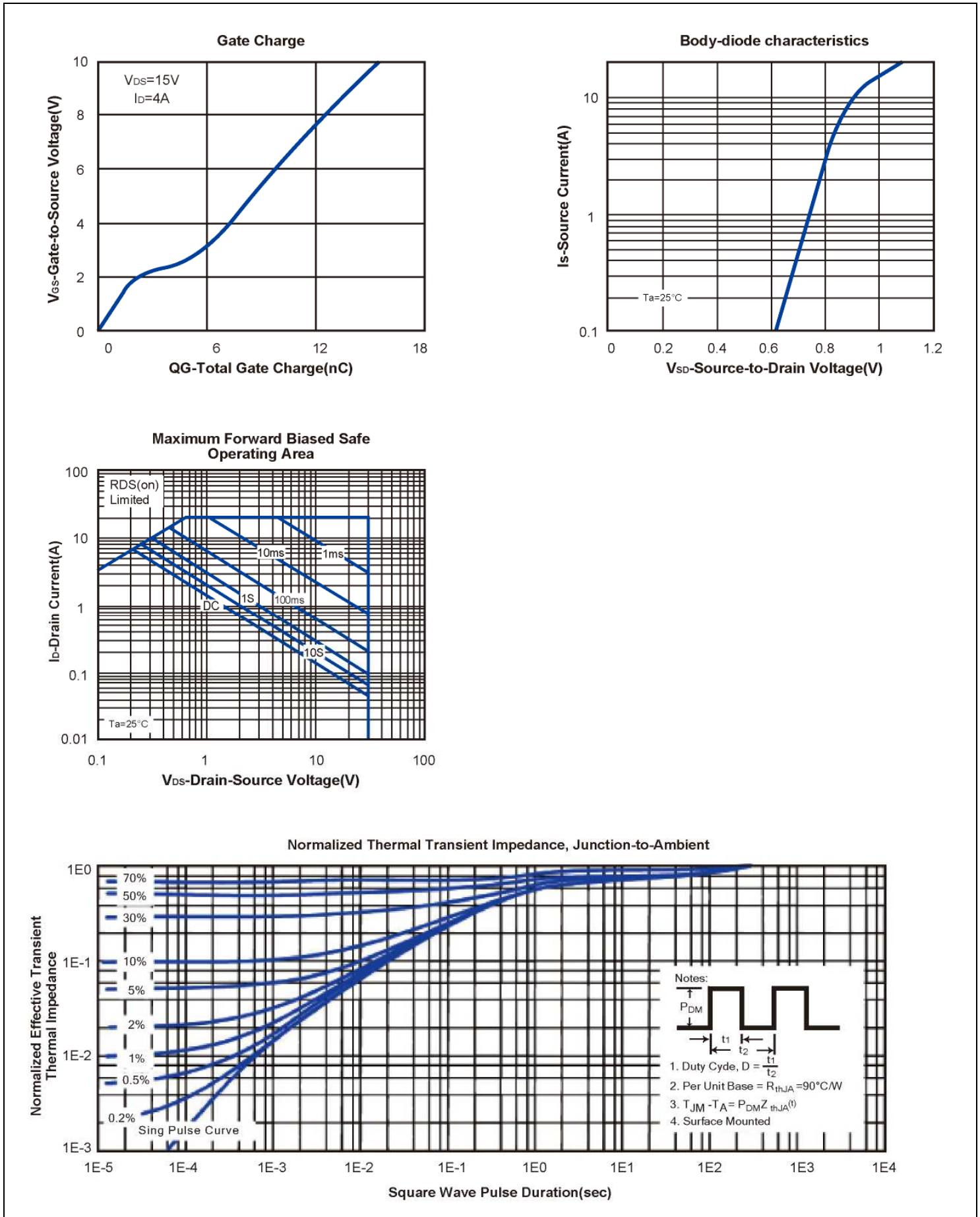
Notes:

- (1). The device mounted on 1in2 FR4 board with 2 oz copper
- (2). Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$, guaranteed by design, not subject to production testing.
- (3). LiteON Semiconductor reserves the right to improve product design, functions and reliability without notice

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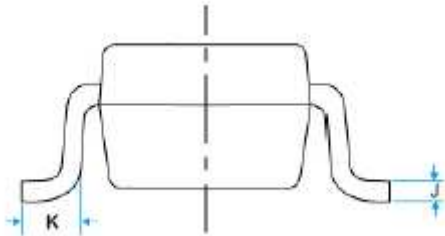
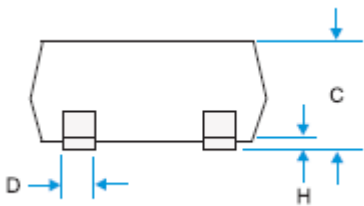
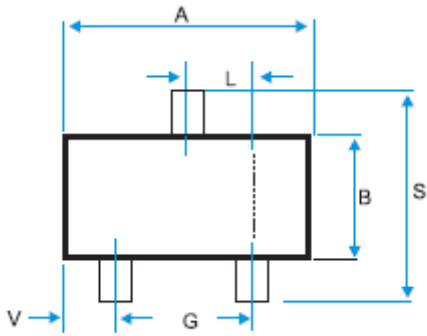
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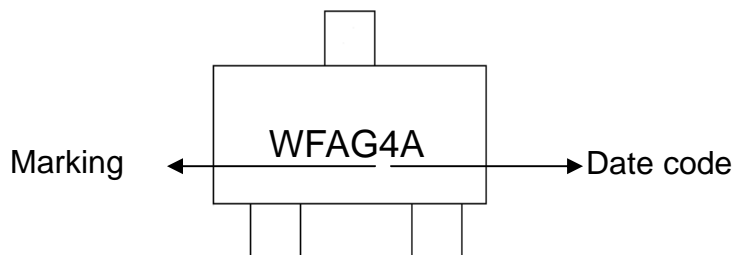
Package Outline Dimension

SOT-23



SOT-23		
DIM	MIN	MAX
A	2.80	3.00
B	1.20	1.70
C	0.90	1.30
D	0.35	0.50
G	1.78	2.04
H	0.010	0.150
J	0.085	0.200
K	0.30	0.65
L	0.89	1.02
S	2.10	3.00
V	0.45	0.60
All Dimensions in millimeter		

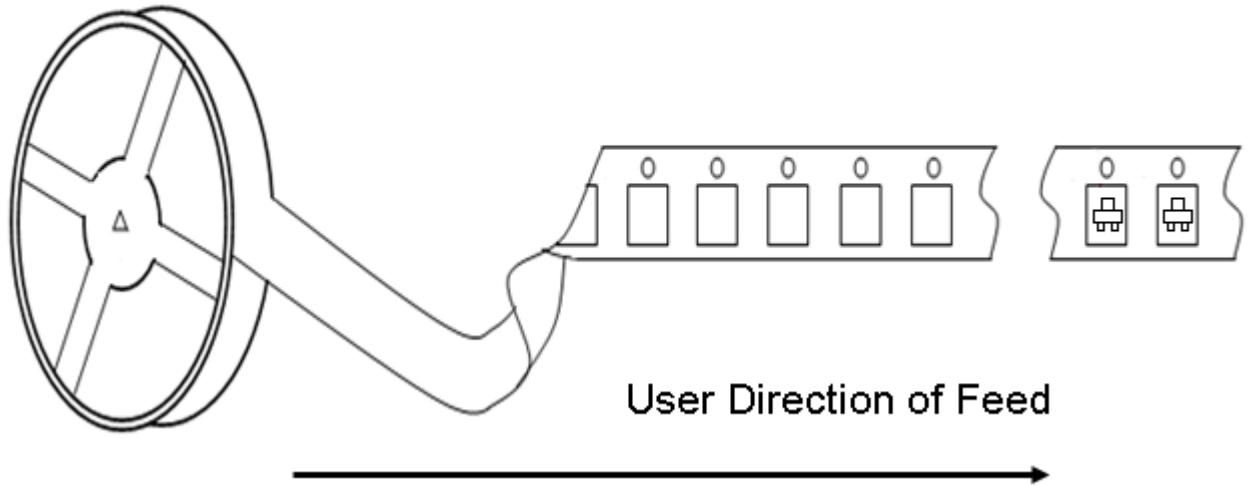
Marking information



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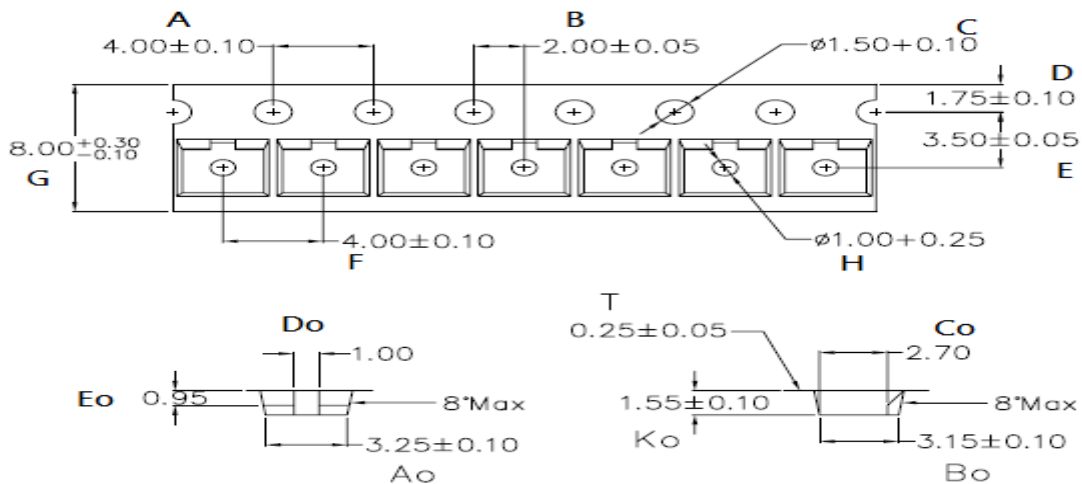
Packaging Information

Polar Units



DEVICE	Q'TY/REEL (PCS)	REEL DIA. (mm)	BOX SIZE (cm)	Q'TY/BOX (PCS)	CARTON SIZE (cm)	Q'TY/CARTON (PCS)
LCS32N03A	3000	180	19X19X14	30K	40X40X35	240K

Embossed Carrier Dimensions Information



TAPE SIZE	A	B	C	D	E	F	Co	Eo	Unit
8mm	4.00±0.10	2.00±0.05	∅1.50±0.10	1.75±0.10	3.50±0.05	4.00±0.10	2.70	0.95	mm
	G	H	T	Ao	Ko	Bo	Do		
	8.00±0.30/-0.10	∅1.00±0.25	0.25±0.05	3.25±0.10	1.55±0.10	3.15±0.10	1.00		

N-Channel 30V Trench MOSFET**Important Notice and Disclaimer**

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