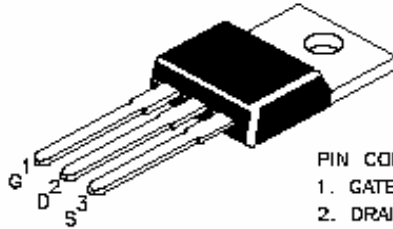


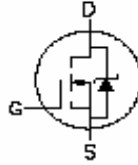
## N- CHANNEL TRENCH MOSFET TRANSISTOR

CDZ44

TO-220  
Plastic Package



**PIN CONFIGURATION**  
1. GATE  
2. DRAIN  
3. SOURCE



### Applications:-

Automotive, DC Motor Control, Class D Amplifier

### ABSOLUTE MAXIMUM RATINGS ( $T_c=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	Maximum	UNITS
Drain to Source Voltage	$*V_{DSS}$	60	V
Continuous Drain Current	$I_D$	55	A
Power Dissipation	$P_D$	130	W
Derating Factor Above 25°C		0.87	W/°C
Gate Source Voltage	$V_{GS}$	$\pm 20$	V
Single Pulse Avalanche Energy, $L=10\text{ mH}, I_D=8\text{ A}$	$E_{AS}$	320	mJ
Peak Diode Recovery dv/dt	$***dv/dt$	3.0	V/ns
Maximum Temperature for Soldering Lead at 0.063 in (1.6mm) from Case for 10 seconds	$T_L$	300	°C
Package Body for 10 seconds	$T_{PKG}$	260	°C
Operating Junction and Storage Temperature Range	$T_j, T_{stg}$	- 55 to 175	°C

### THERMAL RESISTANCE

Junction to Case	Test Condition		
Drain Lead Soldered to water Cooled Heatsink , PD Adjusted for a Peak Junction Temperature of +175 °C		$R_{th(j-c)}$	1.15 °C/W
Junction to Ambient	Test Condition		
1 Cubic Foot Chamber, free air		$R_{th(j-a)}$	62 °C/W

### OFF CHARACTERISTICS ( $T_j=25^\circ\text{C}$ unless specified otherwise)

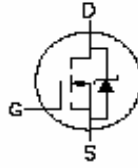
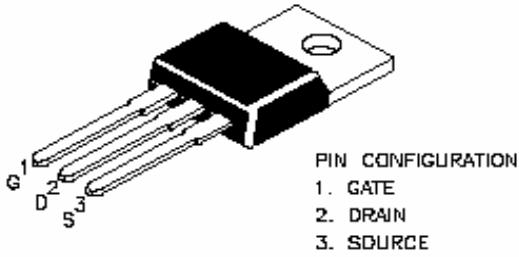
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Drain Source Breakdown Voltage	$V_{DSS}$	$V_{GS}=0V, I_D=250\mu\text{A}$	60			V
Drain to Source Leakage Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0$			25	$\mu\text{A}$
		$V_{DS}=48V, V_{GS}=0, T_j=150^\circ\text{C}$			250	$\mu\text{A}$
Gate to Source Forward Leakage	$I_{GSS}$	$V_{DS}=0, V_{GS}=+20V$			100	nA
Gate to Source Reverse Leakage	$I_{GSS}$	$V_{DS}=0, V_{GS}=-20V$			- 100	nA

CDZ44 Rev 141209E

# N- CHANNEL TRENCH MOSFET TRANSISTOR

CDZ44

TO-220  
Plastic Package



## ON CHARACTERISTICS ( $T_J=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Static Drain Source On Resistance	**** $R_{DS(ON)}$	$V_{GS}=10\text{V}$ , $I_D=33\text{A}$			18	m $\Omega$
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu\text{A}$	2.0		4.0	V
Forward Transconductance	****gfs	$V_{DS}=30\text{V}$ , $I_D=55\text{A}$		65		S

## DYNAMIC CHARACTERISTICS Essentially independent of operating temperature

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Input Capacitance	$C_{ISS}$	$V_{DS}=25\text{V}$ , $V_{GS}=0\text{V}$ , $f=1\text{MHz}$		2077		pF
Output Capacitance	$C_{OSS}$			222		pF
Reverse Transfer Capacitance	$C_{RSS}$			115		pF
Total Gate Charge	$Q_g$	$V_{DD}=30\text{V}$ , $I_D=55\text{A}$		33.6		nC
Gate to Source Charge	$Q_{gs}$			9.1		nC
Gate to Drain ('Miller') Charge	$Q_{gd}$			7.6		nC

## RESISTIVE SWITCHING CHARACTERISTICS Essentially independent of operating temperature

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Turn On Delay Time	$t_{d(on)}$	$V_{DD}=30\text{V}$ , $R_G=9.1\Omega$ , $I_D=27.5\text{A}$ , $V_{GS}=10\text{V}$		24		ns
Rise Time	$t_{rise}$			37		ns
Turn Off Delay Time	$t_{d(off)}$			71		ns
Fall Time	$t_{fall}$			65		ns

## SOURCE DRAIN DIODE CHARACTERISTICS ( $T_c=25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Continuous Source Current (Body Diode)	$I_S$	Integral pn-diode in MOSFET			55	A
Maximum Pulsed Current (Body Diode)	$I_{SM}$				220	A
Diode Forward Voltage	$V_{SD}$	$I_S=55\text{A}$ , $V_{GS}=0\text{V}$			1.5	V
Reverse Recovery Time	$t_{rr}$	$V_{GS}=0$ , $V_{DD}=-30\text{V}$ , $I_F=55\text{A}$ , $di/dt=100\text{A}/\mu\text{s}$			92.5	ns
Reverse Recovery Charge	$Q_{rr}$				163.5	nC

\*  $T_J=+25^\circ\text{C}$  to  $175^\circ\text{C}$

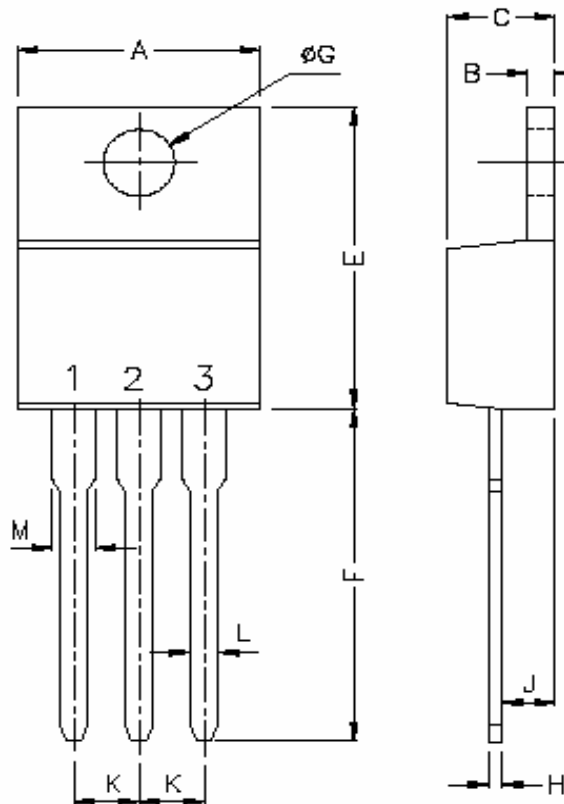
\*\* Repetitive rating: pulse width limited by maximum junction temperature

\*\*\* $I_{SD}=55\text{A}$   $di/dt \leq 100\text{A}/\mu\text{s}$ ,  $V_{DD} \leq BV_{DSS}$ ,  $T_J=+175^\circ\text{C}$

\*\*\*\*Pulse Width  $\leq 380\mu\text{s}$ , Duty Cycle  $\leq 2\%$

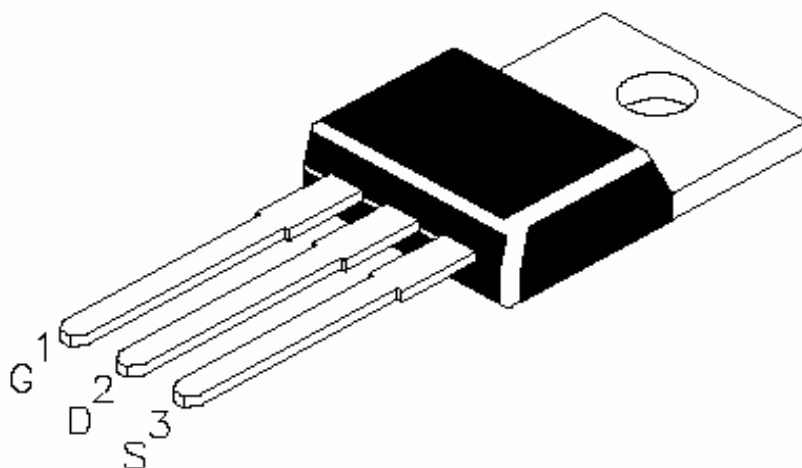
CDZ44 Rev 141209E

PACKAGE TO-220



DIM	MIN	TYP.	MAX
A			10.7
B			1.4
C			4.8
D			6.9
E			16.5
F	12.5		
G		3.81	
H			0.4
J		2.67	
K		2.51	
L			1.2
M		1.27	

ALL DIMENSIONS ARE IN mm



PIN CONFIGURATION

1. GATE
2. DRAIN
3. SOURCE

**Component Disposal Instructions**

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

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