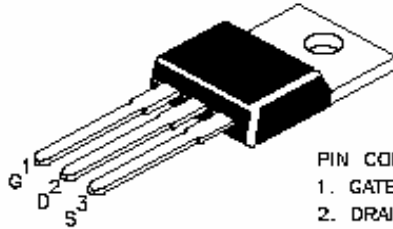


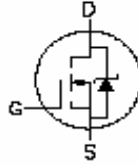
N- CHANNEL TRENCH MOSFET TRANSISTOR

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}	± 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)

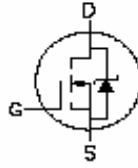
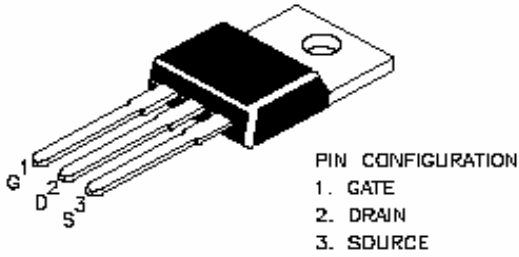
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Drain Source Breakdown Voltage	V_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60			V
Drain to Source Leakage Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0$			25	μA
		$V_{DS}=48V, V_{GS}=0, T_j=150^\circ C$			250	μA
Gate to Source Forward Leakage	I_{GSS}	$V_{DS}=0, V_{GS}=+20V$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

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N- CHANNEL TRENCH MOSFET TRANSISTOR

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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 Ω
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°C

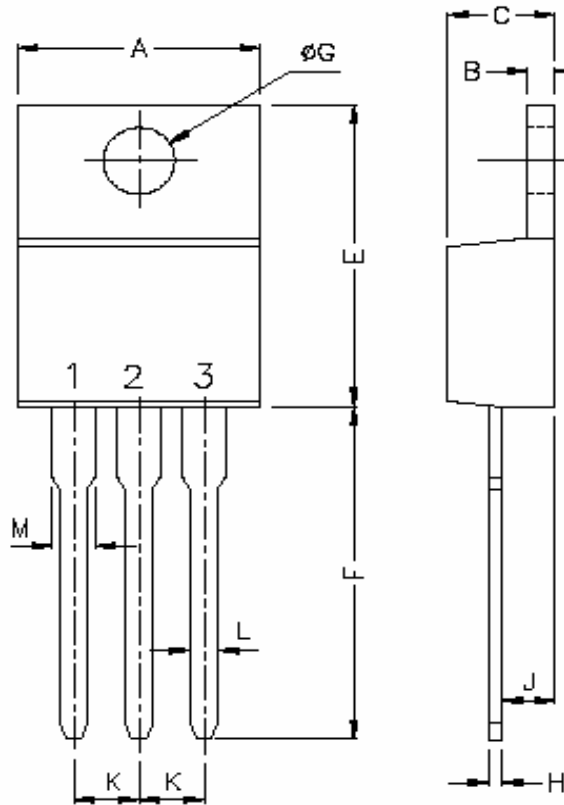
** Repetitive rating: pulse width limited by maximum junction temperature

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

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

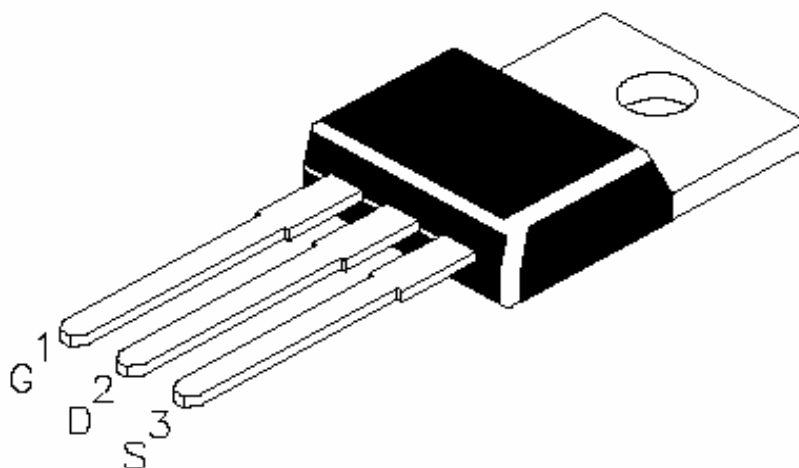
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PACKAGE TO-220



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
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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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The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD is believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

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