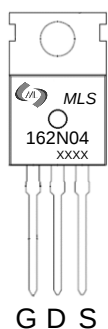


Features

- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity
- Fast switching and soft recovery

Application

- Power switch circuit of POWER
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)



162N04 : Device code
 XXXX : Code

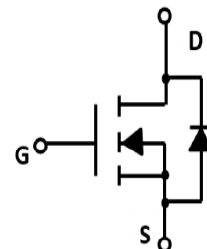
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
40V	4mΩ@10V	162A



TO-220 top view



Schematic diagram



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
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Common Ratings (TC=25°C Unless Otherwise Noted)

V _{DS}	Drain-Source Breakdown Voltage		40	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	Tc=25°C	162	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}C$	648	A
I_D	Continuous Drain Current	$T_C=25^{\circ}C$	162	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$	171	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		62.5	°C/W
E_{AS}	Single Pulse Avalanche Energy ^{Note1}		1980	mJ

Ordering Information (Example)

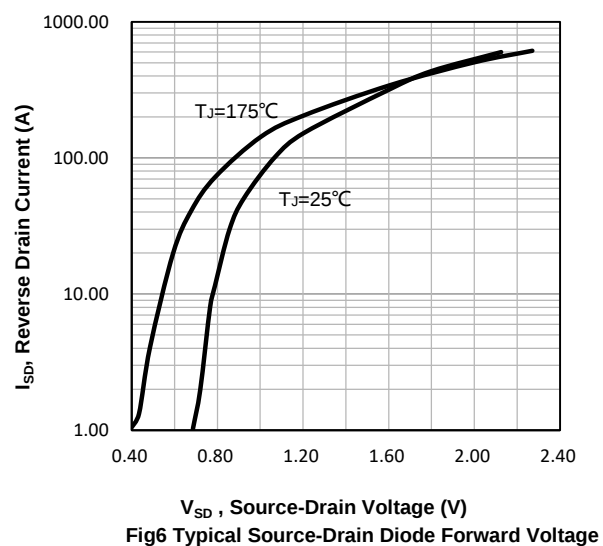
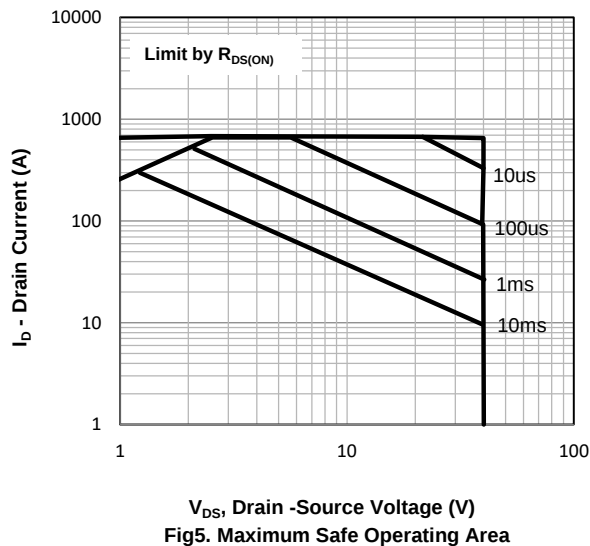
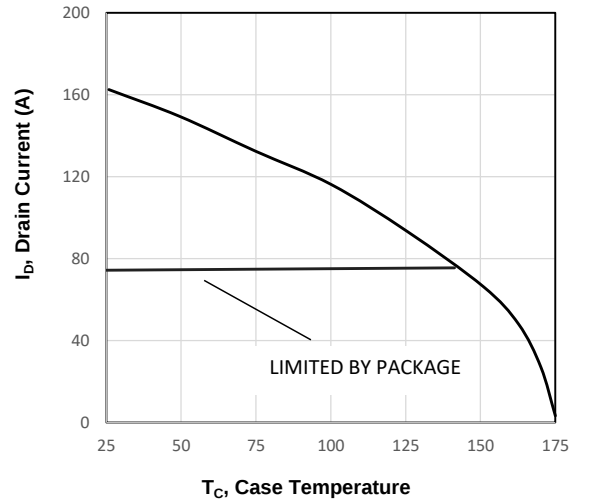
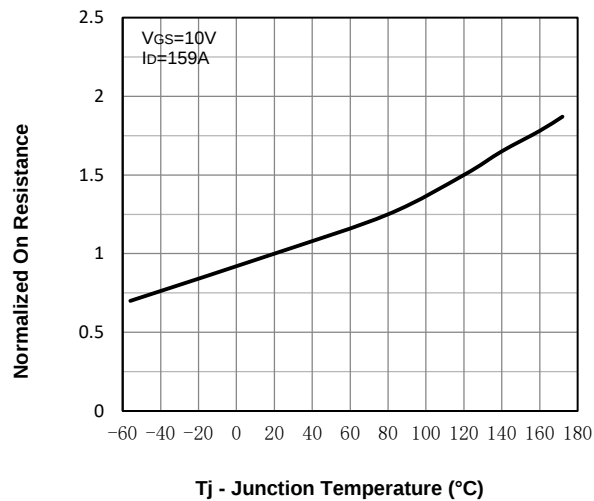
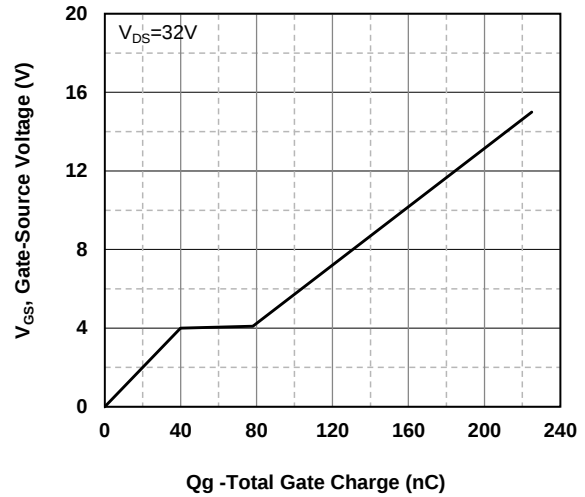
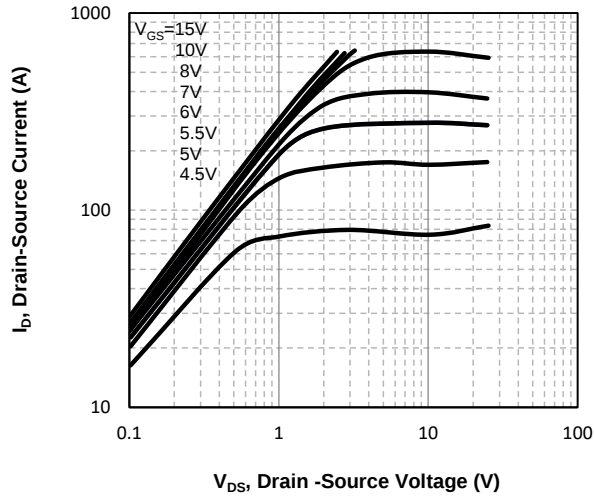
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)
MLSY162N04	TO-220	162N04	50	1,000	5,000

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	40	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =40V, V _{GS} =0V	--	--	20	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±200	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2	--	4	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =60A	--	4	5	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	--	3840	--	pF
C _{OSS}	Output Capacitance		--	1710	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	470	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =20V, I _D =162A, V _{GS} =10V	--	96	--	nC
Q _{gs}	Gate Source Charge		--	19	--	nC
Q _{gd}	Gate Drain Charge		--	46	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =20V, I _D =162A, V _{GS} =10V, R _G =10Ω	--	32	--	nS
t _r	Turn-on Rise Time		--	92	--	nS
t _{d(off)}	Turn-Off Delay Time		--	101	--	nS
t _f	Turn-Off Fall Time		--	69	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25℃, I _S =162A	--	--	1.2	V

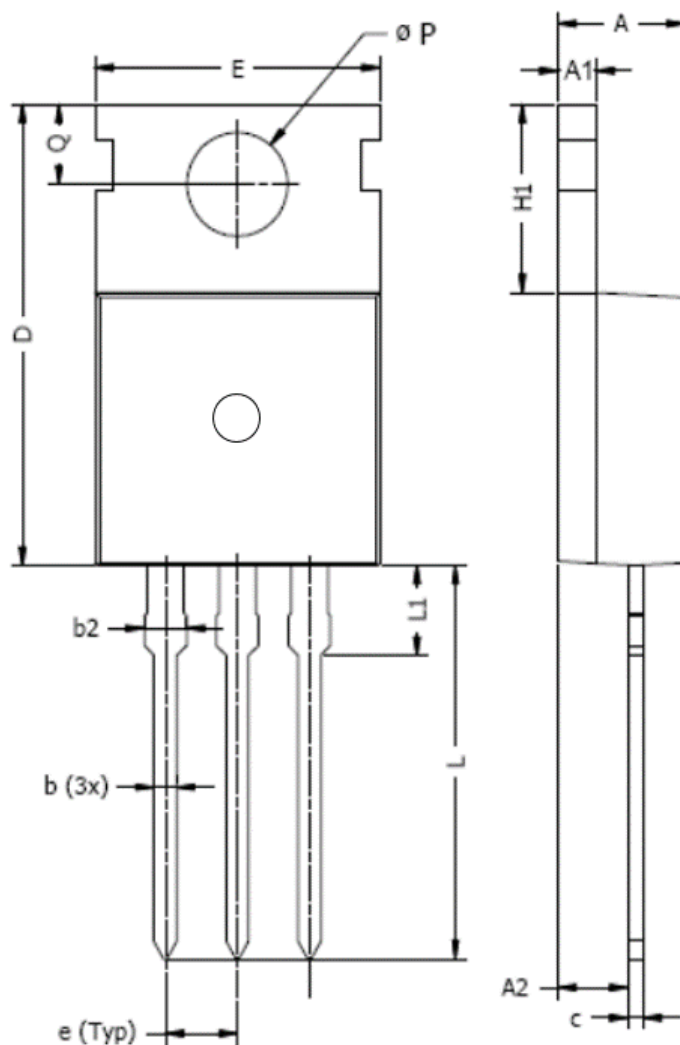
Note :

1、EAS Test condition : V_{DD}=20V, V_{GS}=10V, L=1mH, R_G=25Ω, Starting T_J=25° C.

Typical Operating Characteristics



TO-220 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	3.600	4.800	0.142	0.189
A1	1.200	1.400	0.047	0.055
A2	2.030	2.900	0.080	0.114
b	0.400	1.000	0.016	0.039
b2	1.200	1.780	0.047	0.070
c	0.360	0.600	0.014	0.024
D	14.220	16.500	0.561	0.651
e	2.340	2.740	0.092	0.108
E	9.700	10.600	0.383	0.418
H1	5.840	6.850	0.230	0.270
L	12.700	14.700	0.501	0.580
L1	2.700	3.300	0.106	0.130
ϕP	3.500	4.000	0.138	0.158
Q	2.540	3.400	0.100	0.134