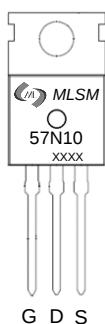


Features

- Low $R_{DS(on)}$ & FOM
- 100% avalanche tested
- Improved dv/dt capability
- Fast switching and soft recovery

Application

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



57N10: Device code
 XXXX : Code

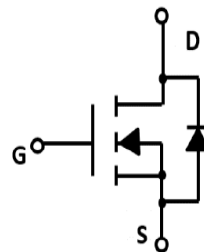
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
100V	17mΩ@10V	57A



TO-220 top view



Schematic diagram



Pb-Free



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		100	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	57	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}C$	228	A
I_D	Continuous Drain Current	$T_C=25^{\circ}C$	57	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$	200	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		62	°C/W
E_{AS}	Single Pulse Avalanche Energy ^{Note1}		943	mJ

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)
MLSY57N10	TO-220	57N10	50	1,000	5,000

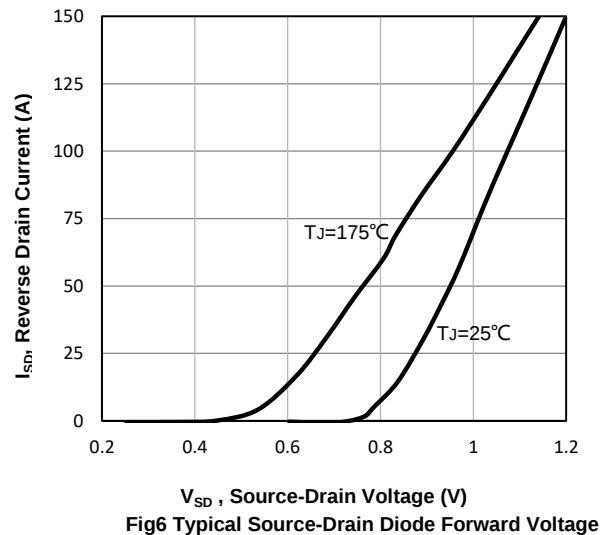
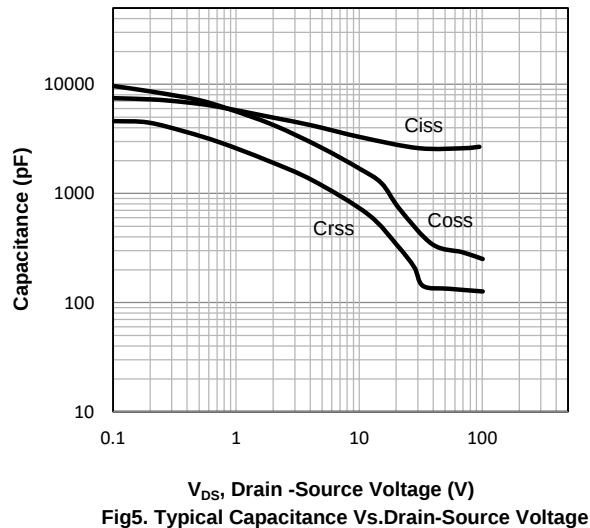
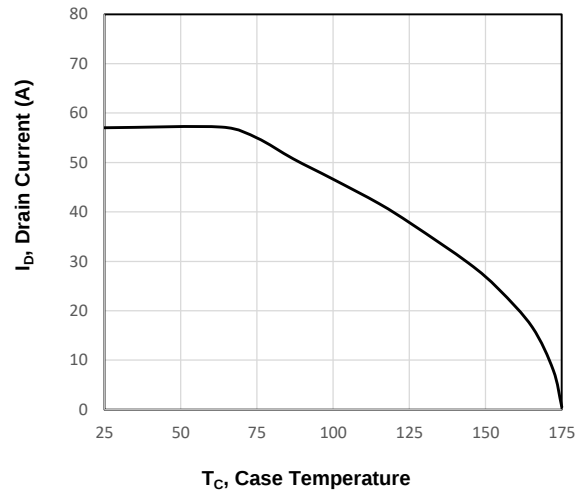
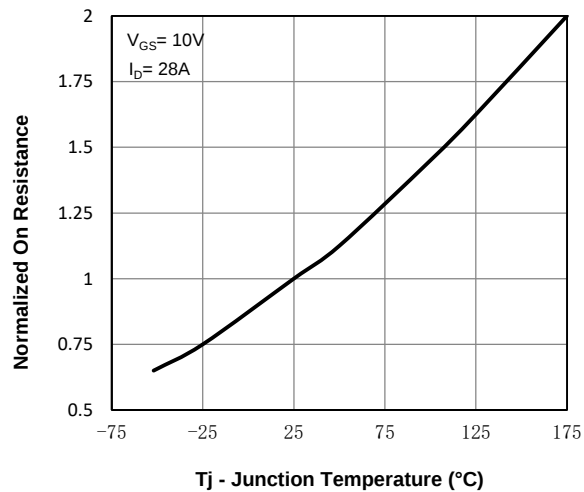
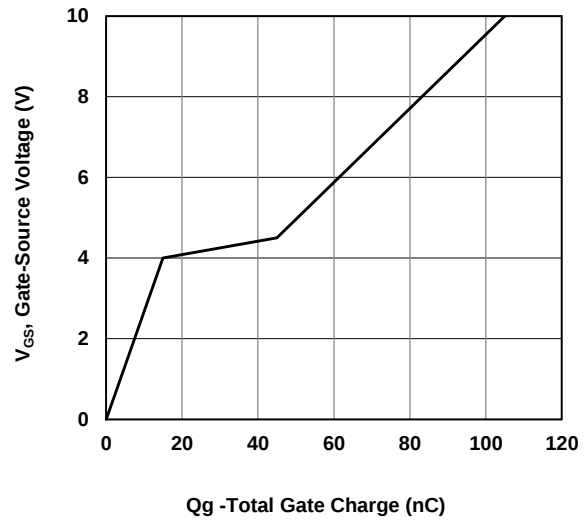
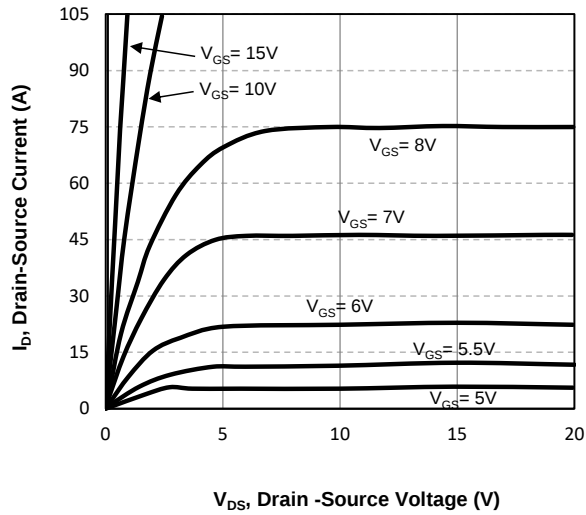
Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV(BR)DSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	100	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=100V, VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	2.0	--	4.0	V
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=28A	--	17	21	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=25V, VGS=0V, f=1MHz	--	2700	--	pF
COSS	Output Capacitance		--	610	--	pF
CRSS	Reverse Transfer Capacitance		--	260	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDD=50V, ID=28A, VGS=0 to 10V	--	60	--	nC
Qgs	Gate Source Charge		--	15	--	nC
Qgd	Gate Drain Charge		--	45	--	nC
td(on)	Turn-on Delay Time	VDD=50V, ID=28A, VGS=10V, RG=2.5Ω	--	20	--	nS
tr	Turn-on Rise Time		--	28	--	nS
td(off)	Turn-Off Delay Time		--	65	--	nS
tf	Turn-Off Fall Time		--	15	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	Tj=25°C, Is=28A	--	--	1.5	V

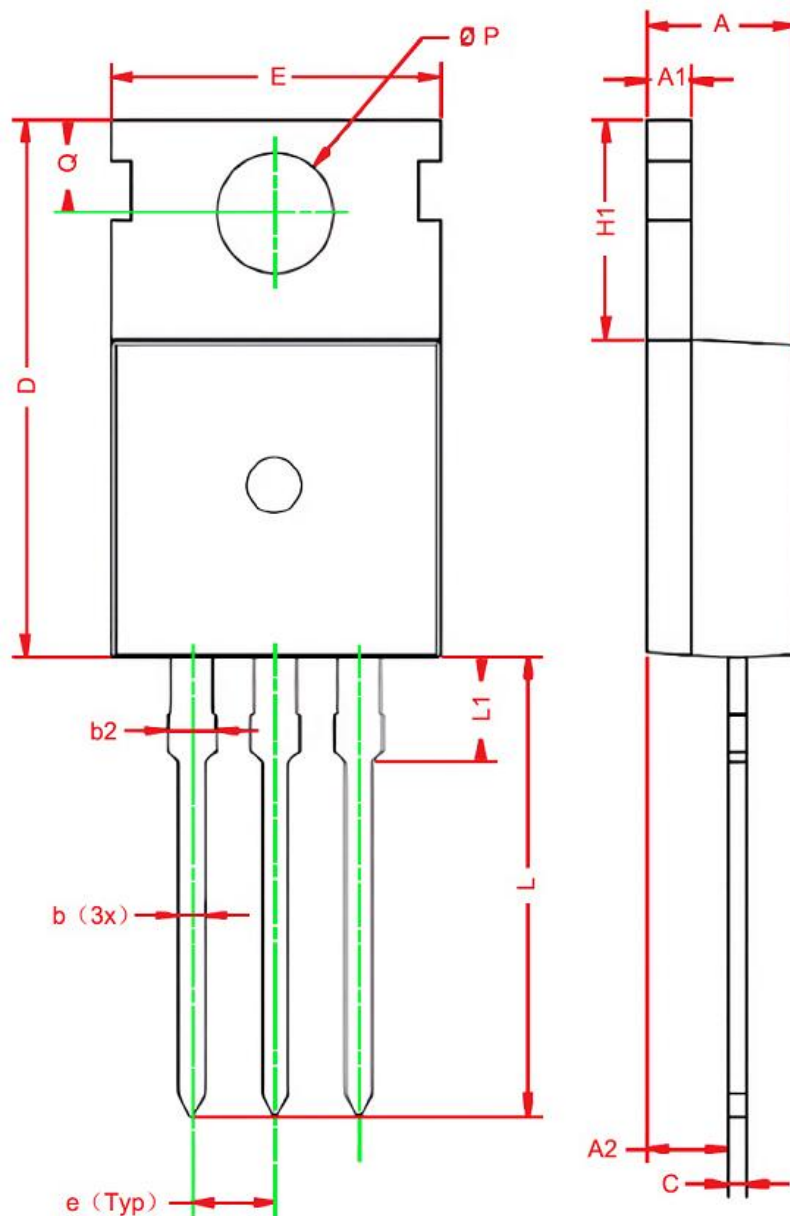
Note :

 1、EAS Test condition : V_{DD}=50V, 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
$\varnothing P$	3.500	4.000	0.138	0.158
Q	2.540	3.400	0.100	0.134