

Features

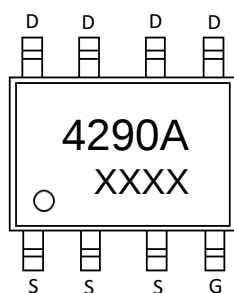
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
100V	5.3m Ω @10V	15.5A
	6.1m Ω @4.5V	

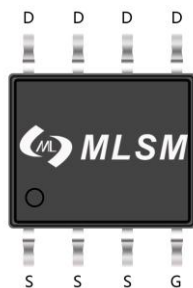
Application

- Power switching application

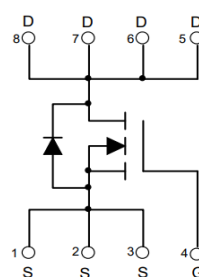


4290A: Device code
 XXXX : Code

Marking and pin assignment



SOP-8 top view



Schematic diagram



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)				
Symbol	Parameter		Rating	Unit
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	15.5	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	Tc=25°C	62	A
I _D	Continuous Drain Current	Tc=25°C	15.5	A
P _D	Maximum Power Dissipation	Tc=25°C	3.1	W
R _{θJA}	Thermal Resistance Junction-Ambient		40	°C/W

Ordering Information (Example)						
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MQ4290A	SOP-8	4290A	3,000	6,000	42,000	13"reel

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	100	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.3	--	2.3	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =15.5A	--	5.3	6.4	mΩ
		V _{GS} =4.5V, I _D =13.5A	--	6.1	7.6	mΩ
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1MHz	--	4525	--	pF
C _{OSS}	Output Capacitance		--	345	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	22.5	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =50V, I _D =15.5A, V _{GS} =10V	--	65	--	nC
Q _{gs}	Gate Source Charge		--	10	--	nC
Q _{gd}	Gate Drain Charge		--	9	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =50V, R _L =3.25Ω, V _{GS} =10V, R _G =3Ω	--	10	--	nS
t _r	Turn-on Rise Time		--	6	--	nS
t _{d(off)}	Turn-Off Delay Time		--	52	--	nS
t _f	Turn-Off Fall Time		--	10	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25℃, Is=15.5A	--	--	1.2	V

Typical Operating Characteristics

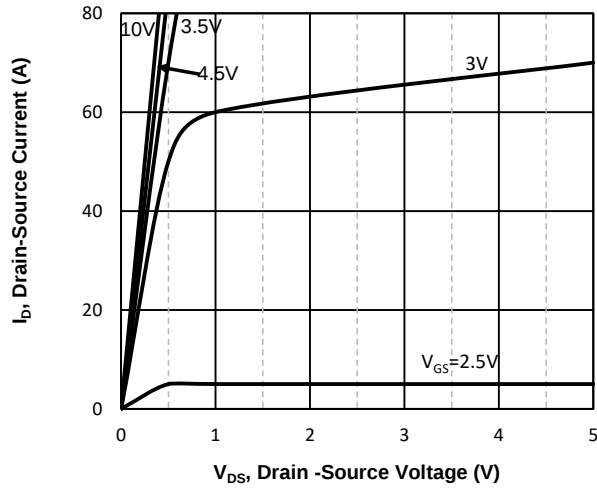


Fig1. Typical Output Characteristics

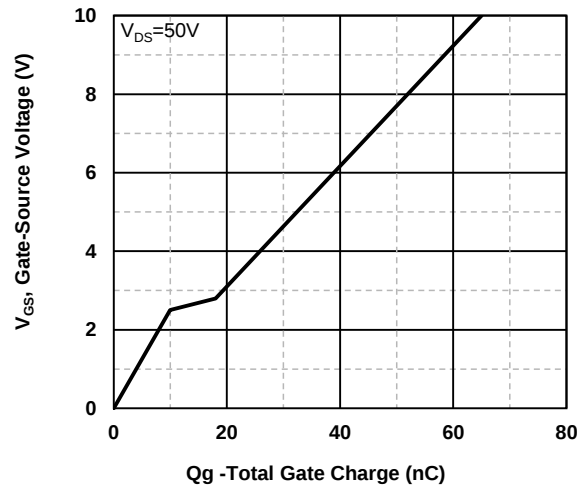


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

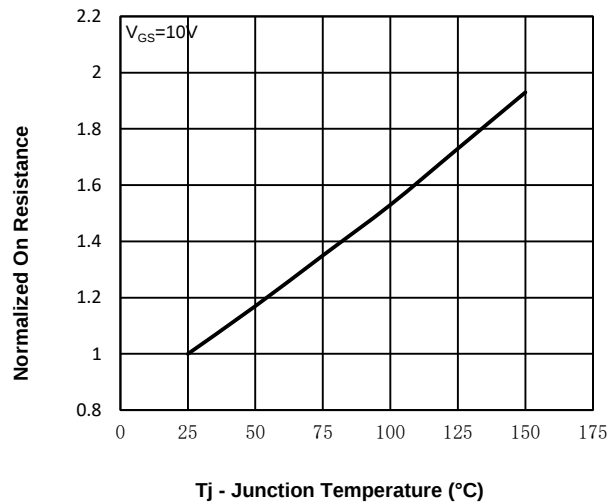


Fig3. Normalized On-Resistance Vs. Temperature

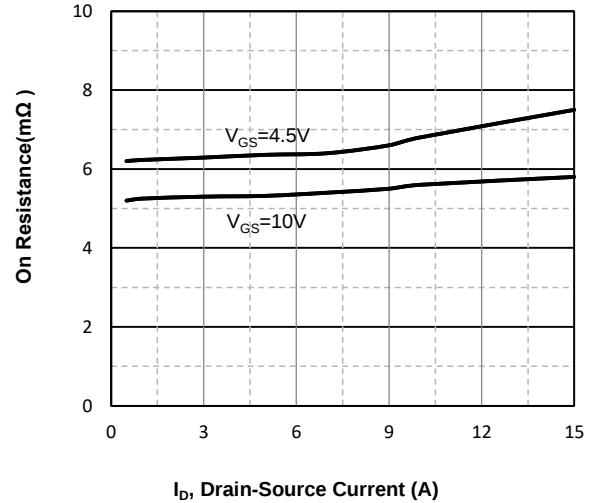


Fig4. On-Resistance Vs. Drain-Source Current

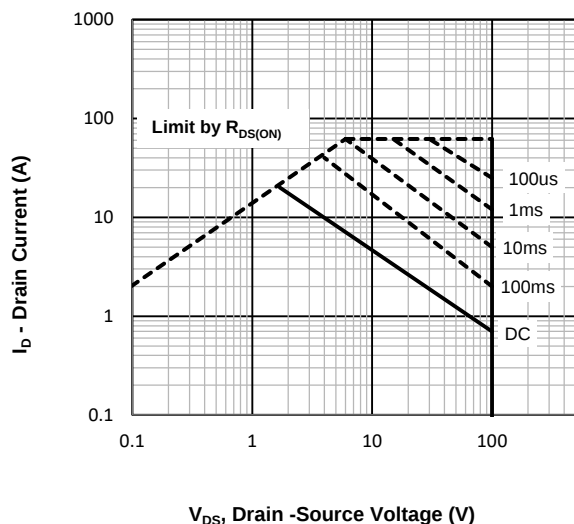


Fig5. Maximum Safe Operating Area

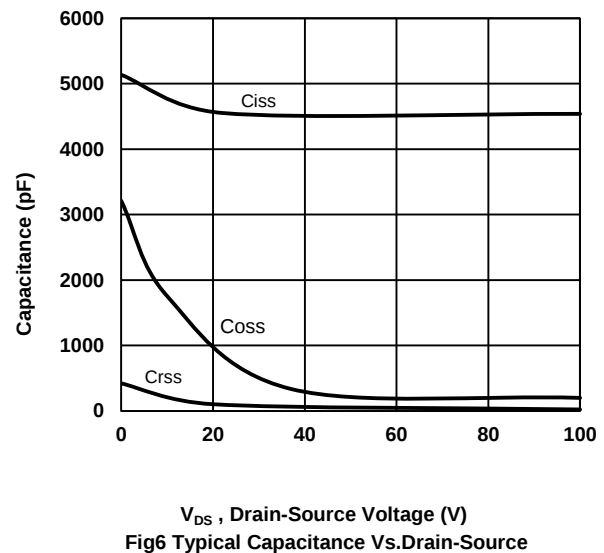


Fig6 Typical Capacitance Vs. Drain-Source

SOP-8 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	1.450	1.750	0.057	0.068
A1	0.100	0.250	0.003	0.009
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.012	0.020
c	0.170	0.250	0.006	0.009
D	4.700	5.100	0.185	0.200
e	1.270(BSC)		0.050(BSC)	
E	3.800	4.000	0.149	0.157
E1	5.800	6.200	0.228	0.244
L	0.400	1.270	0.015	0.050
θ	0°	8°	0°	8°