-40V P-Channel Enhancement Mode MOSFET

1.Product Information

1.1 Features

- ◇ Advanced TRENCH cell design
- ◇ Surface-mounted package
- ◇ Low gate charge

1.2 Applications

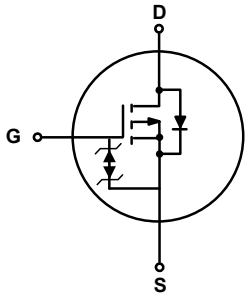
- ◇ Motor driver appliances
- ◇ High power inverter system
- ◇ Adapter appliances

1.3 Quick reference

- ◇ BV ≧ -40 V
- ◇ P_{tot} ≦ 2 W
- ◇ I_D ≦ -5.7 A
- ◇ $R_{DS(ON)}$ ≦ 55mΩ @ V_{GS} = -10 V
- ◇ $R_{DS(ON)}$ ≦ 80mΩ @ V_{GS} = -4.5V

2.Pin Description

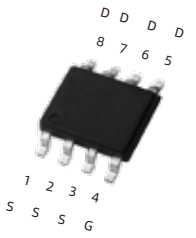
Symbol



Simplified Outline

Top View

SOP8



3.Marking Information

Product Name	Marking
LN480P040S	LN480P040S CYWWZZ XXXXXX

4.Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_A = 25 ℃	-40	-	V
V_{GS}	Gate-Source Voltage	T_A = 25 ℃	-	± 20	V
I_D*	Drain Current (DC)	T_A = 25 ℃, V_{GS} = -10 V	-	- 5.7	A
		T_A = 100 ℃, V_{GS} = -10 V		- 3	A
I_{DM}*,**	Drain Current (Pulsed)	T_A = 25 ℃, V_{GS} = -10 V	-	- 18.8	A
P_{tot}*	Total Power Dissipation	T_A = 25 ℃	-	2	W
T_{stg}	Storage Temperature		- 55	150	℃
T_J	Junction Temperature		-	150	℃
$R_{\theta JA}$*	Thermal Resistance- Junction to Ambient		-	56	℃/W

Notes：
* Surface Mounted on 1 in^2 pad area, t ≤10 sec
** Pulse width ≤ 300 μs, duty cycle ≤ 2 %
*** limited by bonding wire

5.Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
LN480P040S	SOP8	Ø330mm	12mm	3000	

Note: COMTECH defines “ Green ” as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight;Follow IEC 61249-2-21 and IPC / JEDEC J-STD-020C)

6. Electrical Characteristics (T_A=25 ° Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = -250 μA	- 40	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = -250 μA	- 1	-	- 2	V
I_{DSS}	Drain Leakage Current	V_{DS} = -32 V, V_{GS} = 0 V	-	-	- 1	μA
I_{GSS}	Gate Leakage Current	V_{DS} = 0 V, V_{GS} = ± 20 V	-	-	± 8	nA
$R_{DS(ON)}$ [a]	Channel On-State Resistance	V_{GS} = -10 V, I_D = -4 A	-	48	55	mΩ
		V_{GS} = -4.5 V, I_D = -2 A	-	71	80	
Diode Characteristics						
V_{SD} [a]	Diode Forward Voltage	I_{SD} = -4 A, V_{GS} = 0 V	-	-	-1.3	V
t_{rr}	Reverse Recovery Time	I_{sD} = -4 A	-	11	-	nS
Q_{rr}	Reverse Recovery Charge	dI_{SD}/dt = 100 A/μs	-	6.9	-	nC
Dynamic Characteristics[b]						
C_{iSS}	Input Capacitance	V_{GS} = 0 V, V_{DS} = -20 V	-	783	-	pF
C_{OSS}	Output Capacitance	Frequency = 1 MHz	-	60	-	
C_{rSS}	Reverse Transfer Capacitance		-	52	-	
t_d(on)	Turn-on Delay Time	V_{DS} = -20 V, V_{GEN} = -10 V,	-	5.8	-	nS
t_r	Turn-on Rise Time	R_G = 3.9 Ω, R_L = 5 Ω,	-	31	-	
t_d(off)	Turn-off Delay Time	I_{DS} = -4 A	-	149	-	
t_f	Turn-off Fall Time		-	75	-	
Gate Charge Characteristics[b]						
Q_g	Total Gate Charge	V_{DS} = -20 V, V_{GS} = -10 V,	-	14	-	nC
Q_{gs}	Gate-Source Charge	I_{DS} = -4 A	-	3.8	-	
Q_{gd}	Gate-Drain Charge		-	1.8	-	

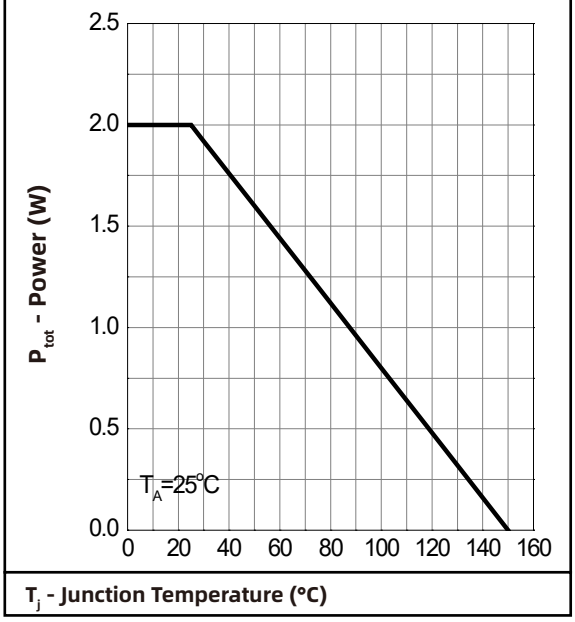
Notes：

a：Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2%

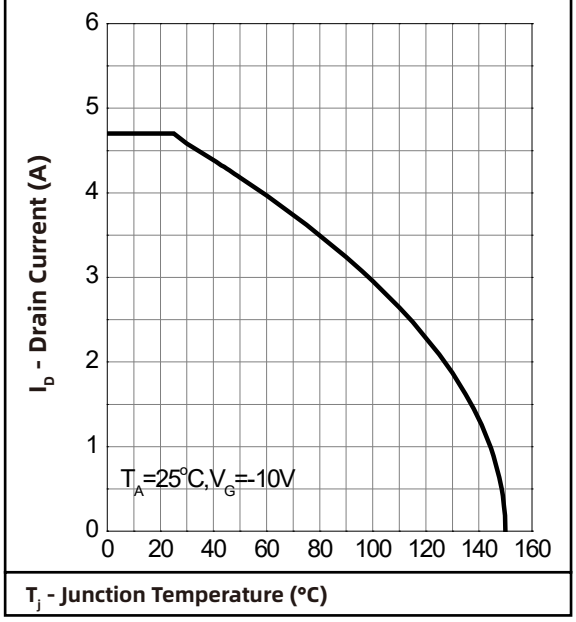
b：Guaranteed by design, not subject to production testing

7. Typical Characteristics

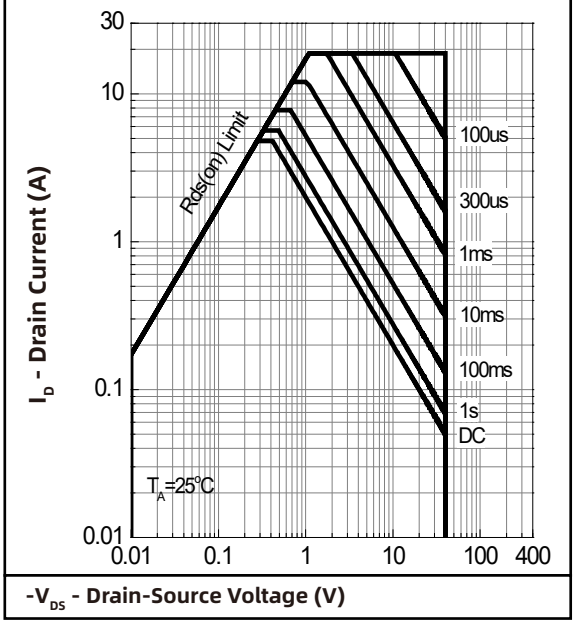
Power Dissipation



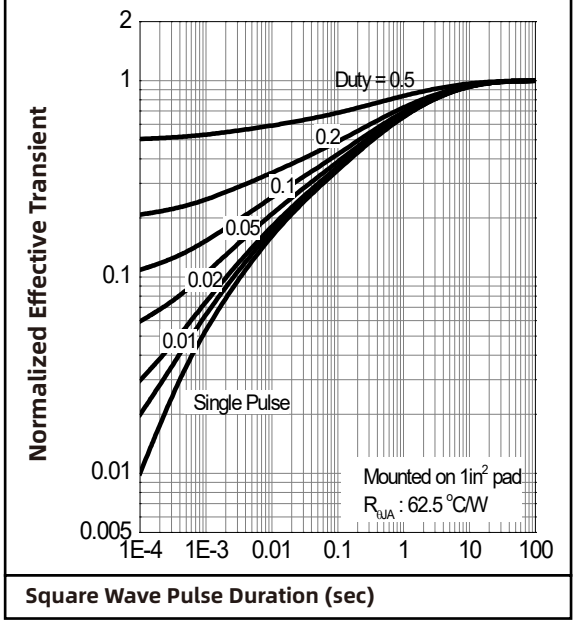
Drain Current



Safe Operation Area

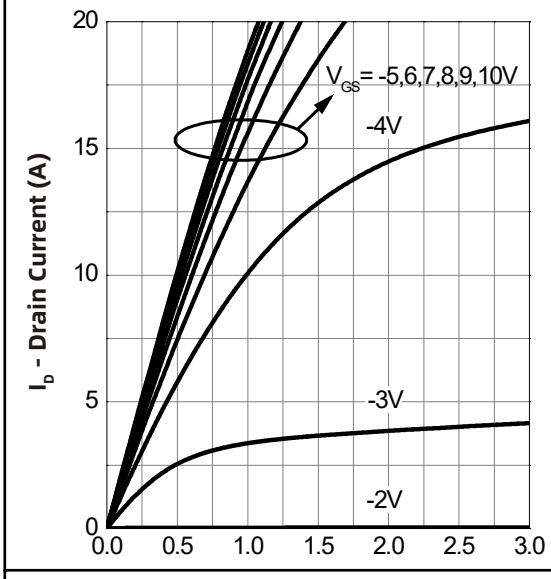


Thermal Transient Impedance

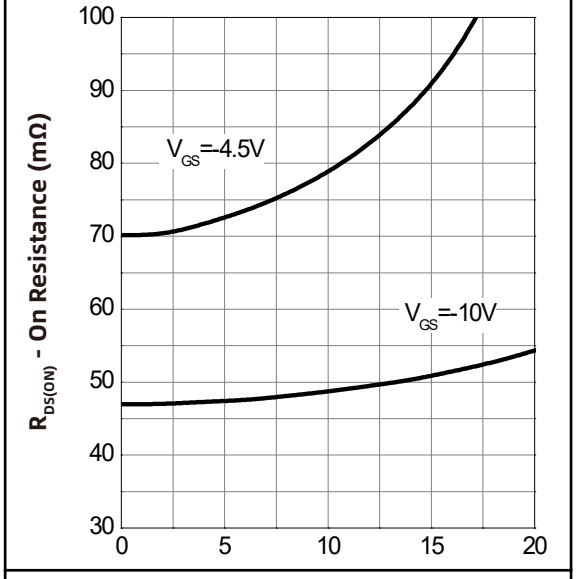


7. Typical Characteristics (cont.)

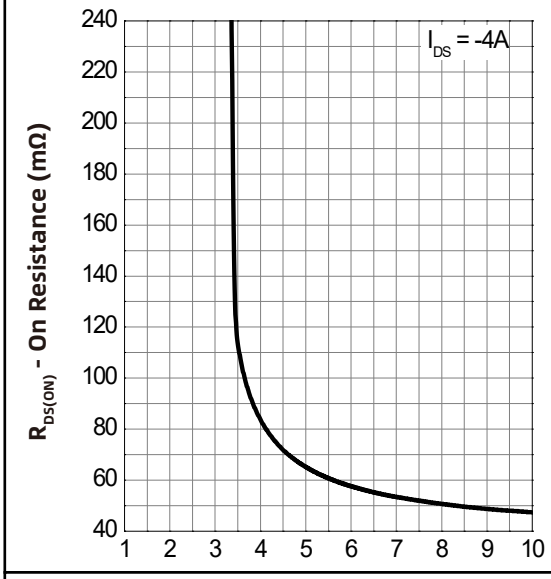
Output Characteristics



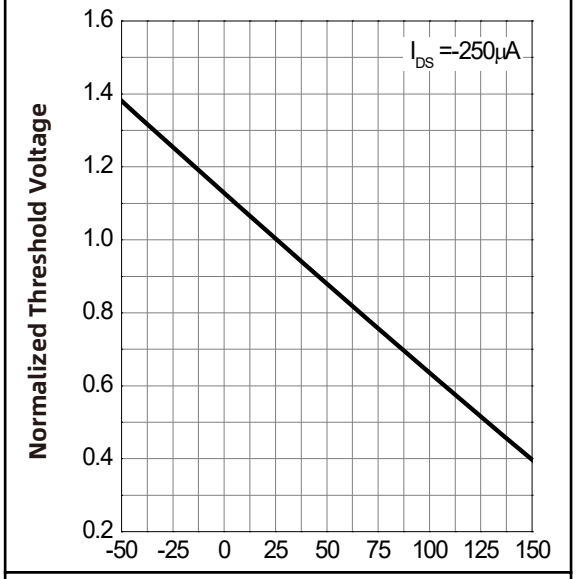
Drain-Source On Resistance



Transfer Characteristics

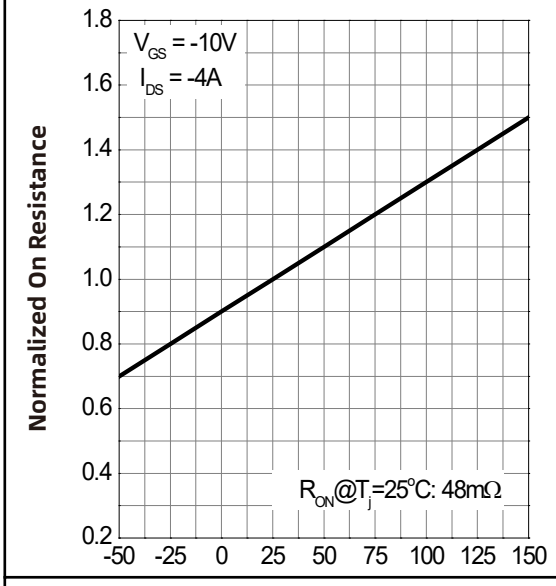


Gate Threshold Voltage



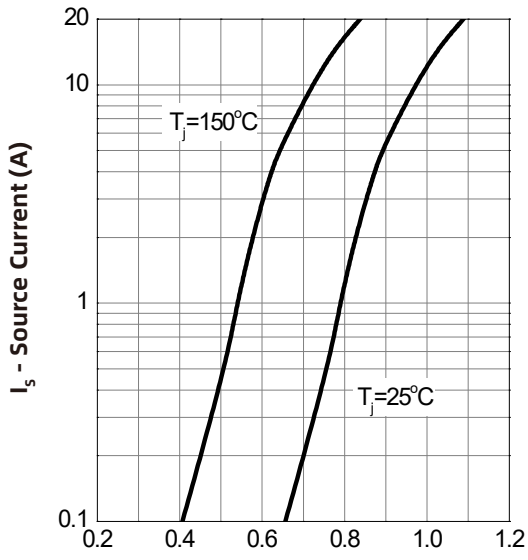
7. Typical Characteristics (cont.)

Drain-Source On Resistance



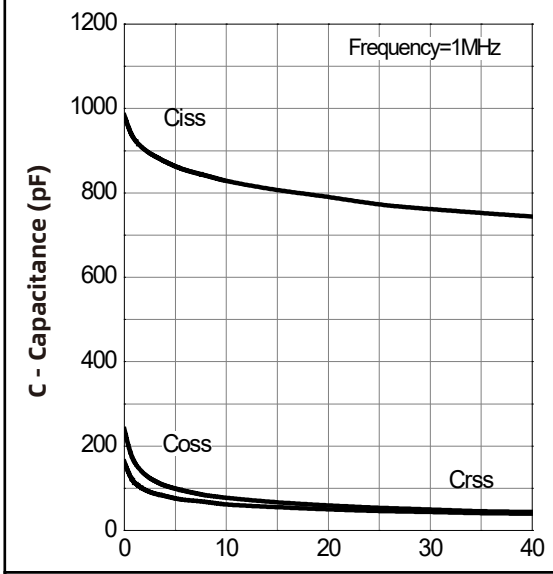
T_j - Junction Temperature (°C)

Source-Drain Diode Forward



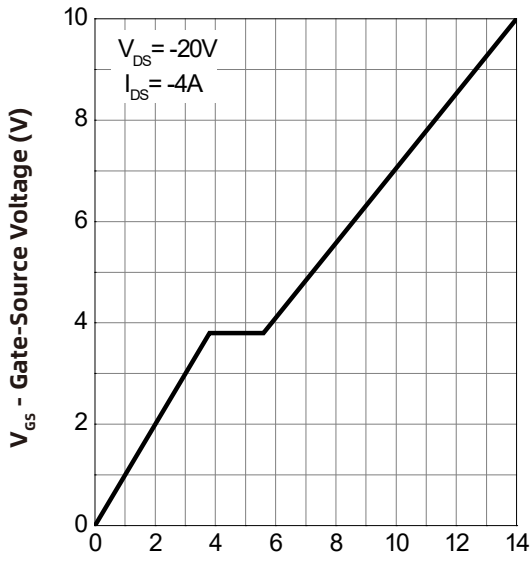
$-V_{SD}$ - Source-Drain Voltage (V)

Capacitance



$-V_{DS}$ - Drain-Source Voltage (V)

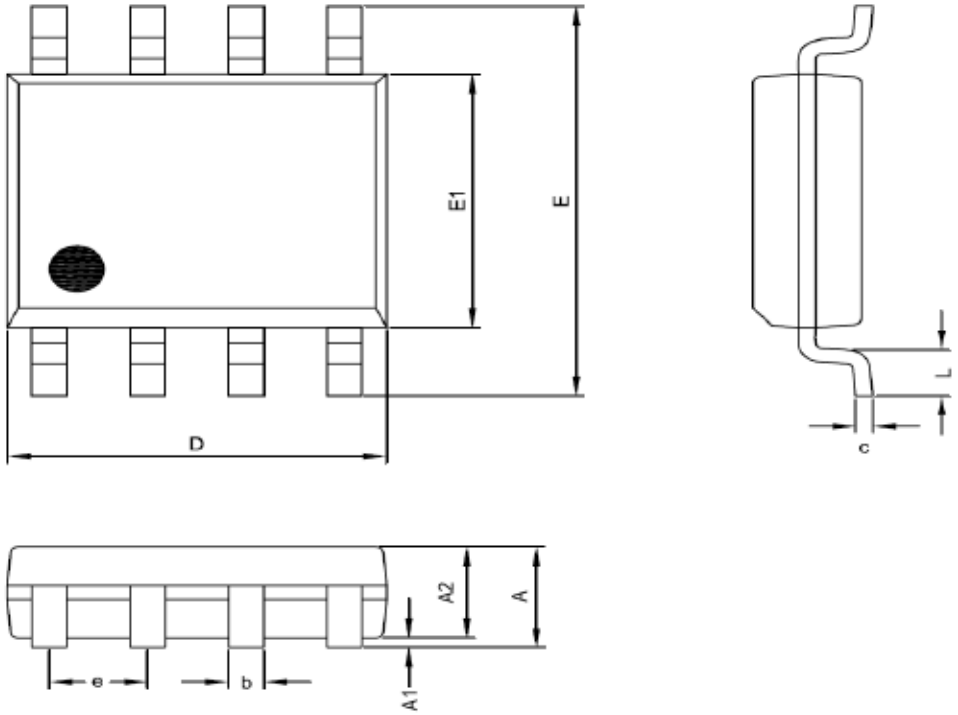
Gate Charge



Q_G - Gate Charge (nC)

8. Package Dimensions

SOP8 Package



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.35	1.75
A1	0.00	0.25
A2	1.15	1.50
D	4.80	5.00
E	5.80	6.20
E1	3.80	4.00
c	0.19	0.27
b	0.33	0.53
e	1.27 BSC	
L	0.40	1.27

Notes：
a : Jedec outline:MS-012AA
b : Dimensions " D " does not include mold flash, protrusions and gate burrs shall not exceed .15 mm (.006 in) per side.
c : Dimensions " E1 " does not include inter-lead flash, or protrusions. Inter-lead flash and protrusions shall not exceed .25 mm (.010 in) per side.