

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☒ Surface-mounted package
- ☒ Advanced trench cell design

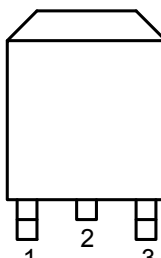
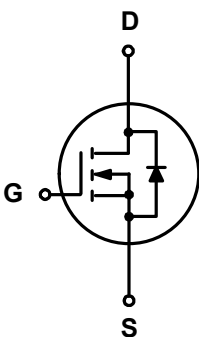
1.2 Applications

- ☒ LCD TV appliances
☒ LCDM appliances
- ☒ High power inverter system

1.3 Quick reference

- ☒ $BV \geq 60\text{ V}$
☒ $P_{tot} \leq 110\text{ W}$
☒ $I_D \leq 80\text{ A}$
- ☒ $R_{DS(ON)} \leq 8.0\text{ m}\Omega @ V_{GS} = 10\text{ V}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1	Gate(G)	 Top View TO-252	
2	Drain(D)		
3	Source(S)		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_C = 25\text{ }^{\circ}\text{C}$	60	-	V
V_{GS}	Gate-Source Voltage	$T_C = 25\text{ }^{\circ}\text{C}$	-	± 20	V
I_D^{***}	Drain Current (DC)	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	-	80	A
		$T_C = 100\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	-	60	A
$I_{DM}^{*.*.*}$	Drain Current (Pulsed)	$T_C = 25\text{ }^{\circ}\text{C}, V_{GS} = 10\text{ V}$	-	320	A
P_{tot}	Drain power dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	-	110	W
T_{stg}	Storage Temperature		-55	150	$^{\circ}\text{C}$
T_J	Junction Temperature		-	150	$^{\circ}\text{C}$
I_S	Continuous-Source Current	$T_C = 25\text{ }^{\circ}\text{C}$	-	80	A
E_{AS}	Single Pulsed Avalanche Energy	$L=0.5\text{mH}, I_{as}=30\text{A}, T_J=25^{\circ}\text{C}$		390	mJ
$R_{\theta JA}^{**}$	Thermal Resistance- Junction to Ambient		-	37	$^{\circ}\text{C/W}$
$R_{\theta JC}^{**}$	Thermal Resistance- Junction to Case		-	1.2	

Notes :

- * Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$
- ** Mounted on Large Heat Sink
- *** limited by bonding wire

4. Marking Information

Product Name	Marking
N6080K	6080 YWWXXX YWW: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
N6080K	TO252			2500	

6. Electrical Characteristics ($T_A=25^\circ$ Unless Otherwise Noted)

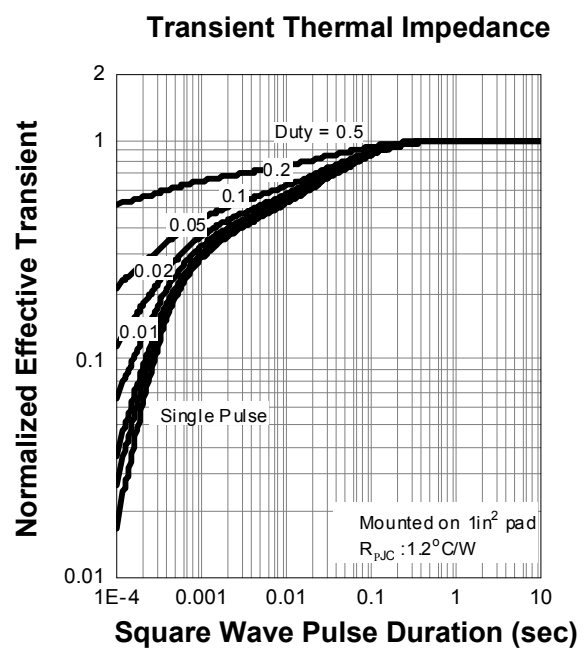
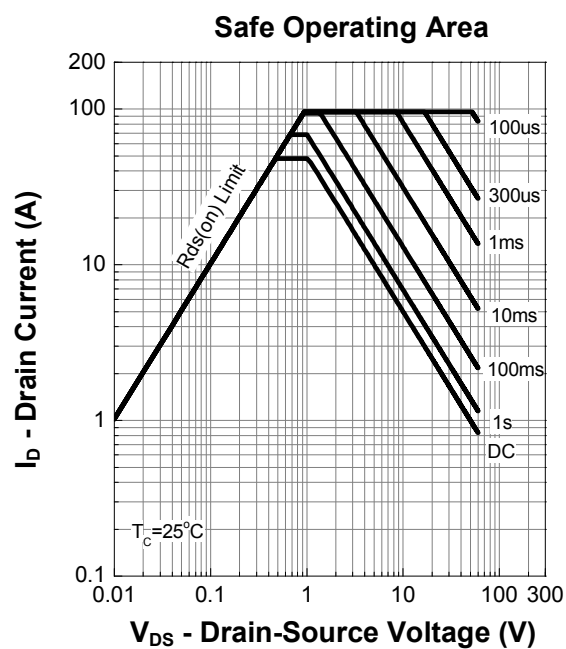
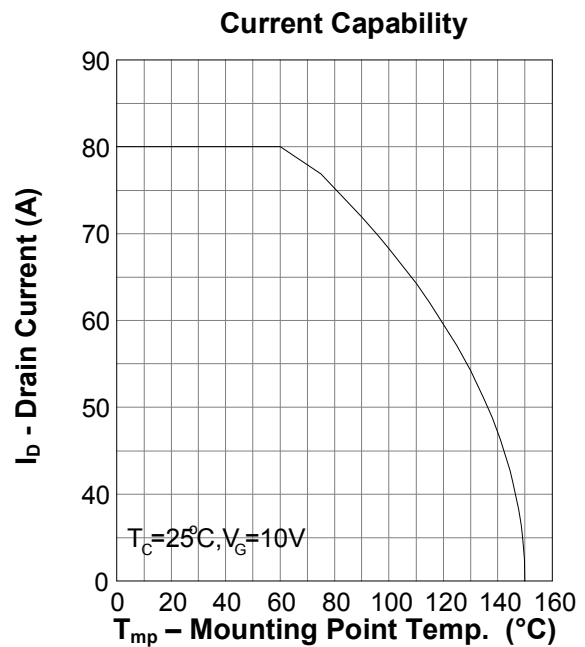
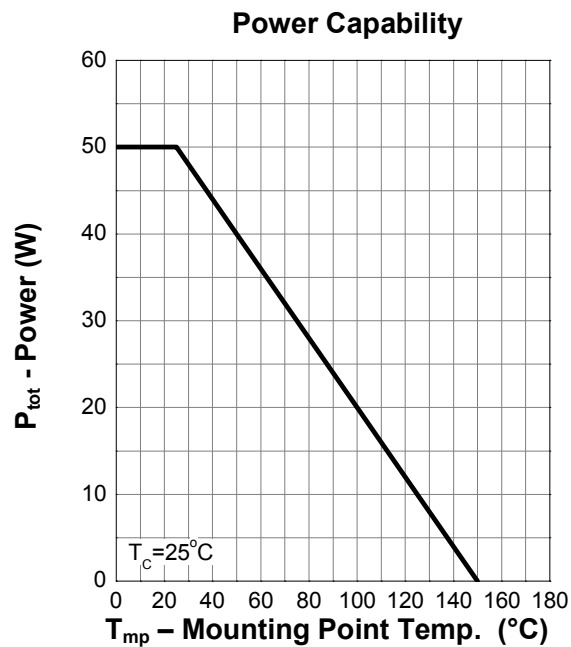
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _{DS} = 250 μA	60	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 μA	2.0	-	4.0	V
I _{DSS}	Drain Leakage Current	V _{DS} = 60 V, V _{GS} = 0 V	-	-	1	μA
I _{GSS}	Gate Leakage Current	V _{GS} = 0 V, V _{GS} = ± 20 V	-	-	±100	nA
R _{DS(ON)} ^a	On-State Resistance	V _{GS} = 10 V, I _{DS} = 20 A	-	7	8	mΩ
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = 20 A, V _{GS} = 0 V	-	-	1.2	V
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = 30 V Frequency = 1 MHz	-	4000	-	pF
C _{oss}	Output Capacitance		-	290	-	
C _{rss}	Reverse Transfer Capacitance		-	210	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = 30 V, V _{GEN} = 10 V, R _G = 4.5 Ω, R _L = 1.5 Ω, I _{DS} = 20 A	-	8.5	-	ns
t _r	Turn-on Rise Time		-	7	-	
t _{d(off)}	Turn-off Delay Time		-	40	-	
t _f	Turn-off Fall Time		-	15	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{DS} = 30 V, V _{GS} = 10 V, I _{DS} = 20 A	-	90	-	nC
Q _{gs}	Gate-Source Charge		-	9	-	
Q _{gd}	Gate-Drain Charge		-	18	-	

Notes :

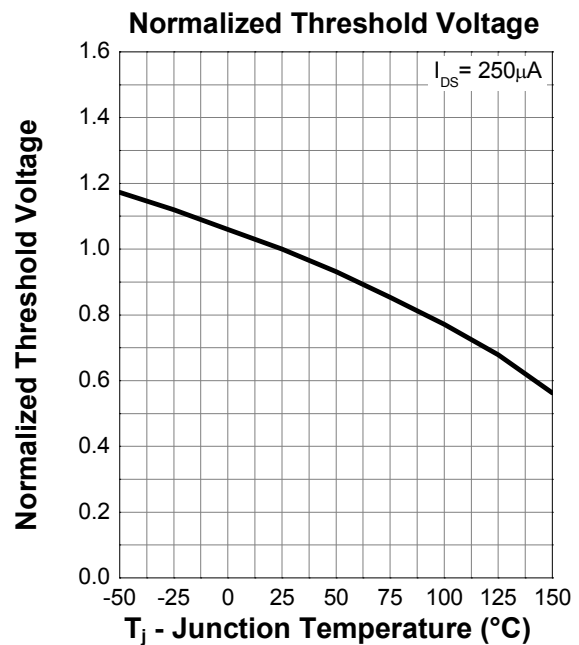
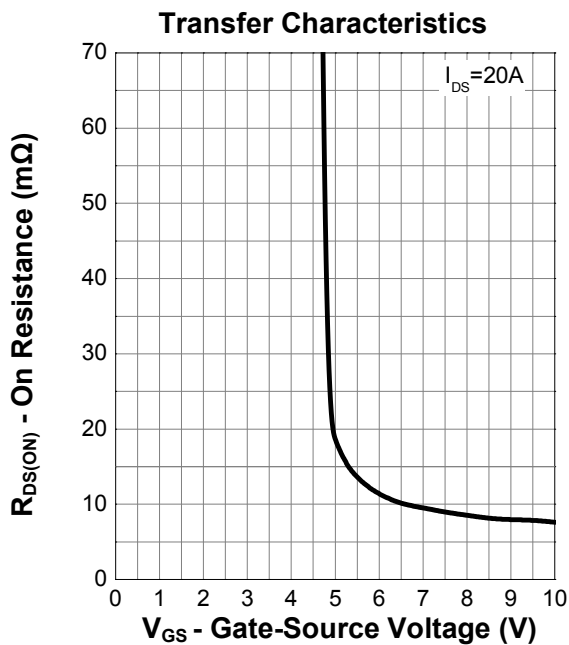
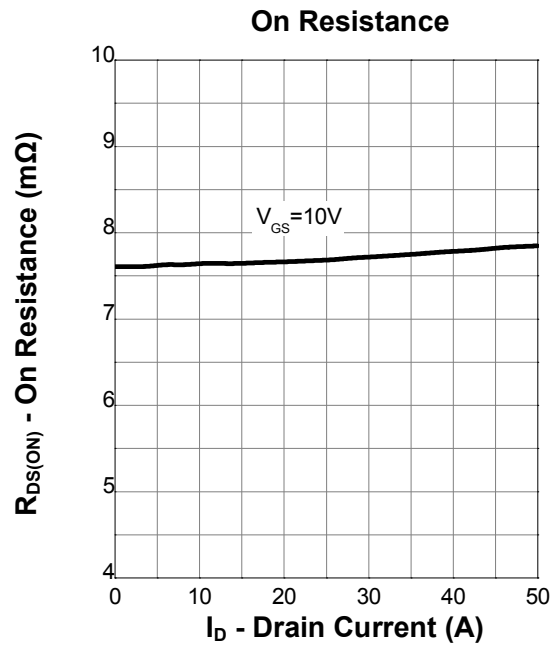
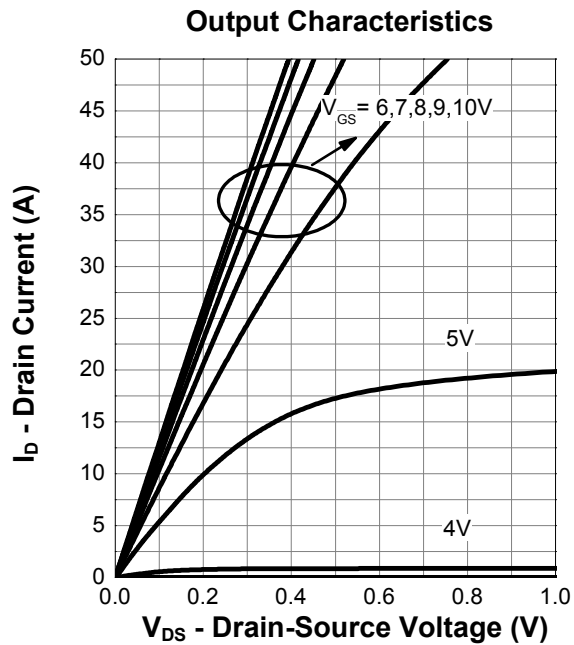
a : Pulse test ; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

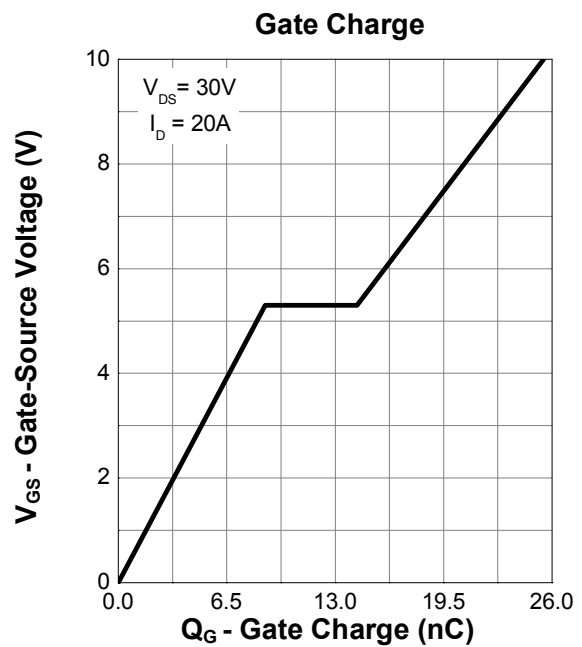
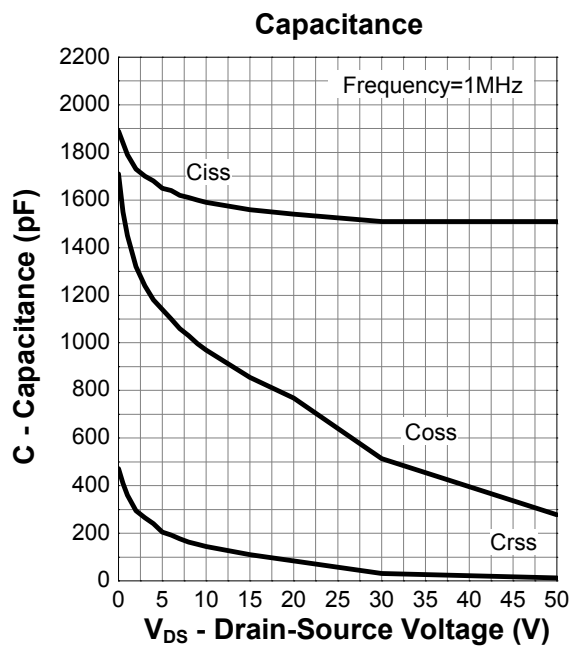
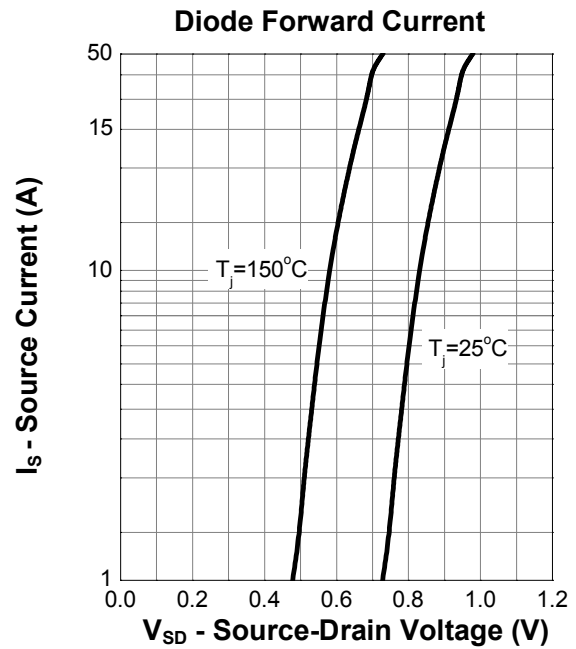
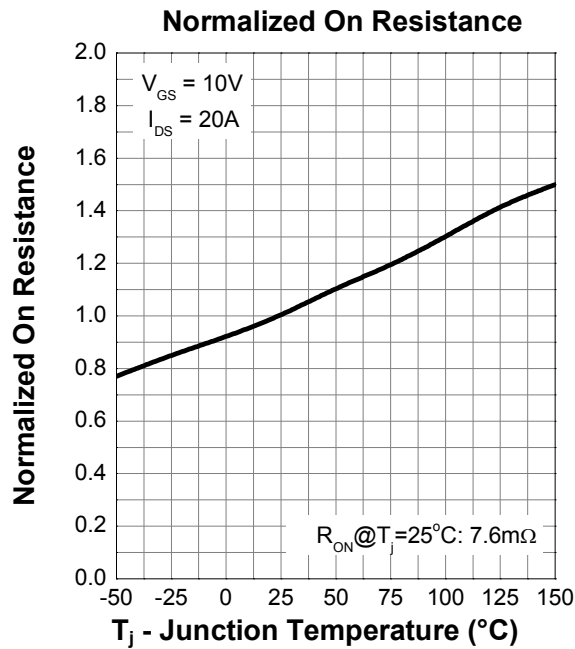
7. Typical Characteristics



7. Typical Characteristics (cont.)

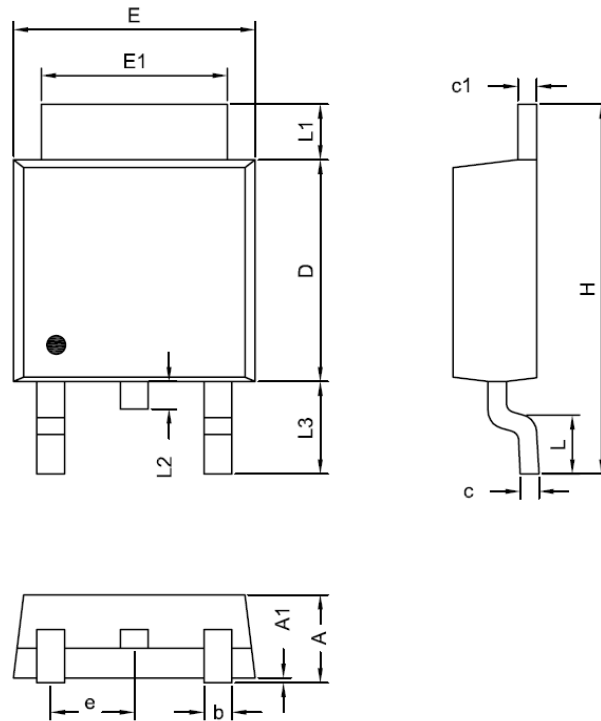


7. Typical Characteristics (cont.)



8.Package Dimensions

TO252-2L



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	2.19	2.38
A1	0.02	0.13
D	5.30	6.40
E	6.35	6.80
E1	5.20	5.50
c	0.40	0.60
c1	0.40	0.60
b	0.55	0.85
e	2.30 BCS	
L	1.00	1.80
L1	0.70	1.80
L2	0.70 BCS	
L3	2.40	2.80
H	9.20	10.40