3080K/Y(文件编号：S&CIC1905) N-Chanel Trench Power MOSFET

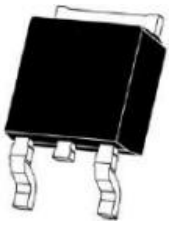
Description

Product Summary
- VDS 30V
- ID 80A
- RDS(ON)(at VGS=10V) ＜5.5 mohm
- RDS(ON)(at VGS=4.5V) ＜8.0 mohm
- 100% UIS Tested
- 100% ▽VDS Tested

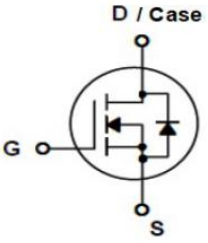
General Description
- Trench Power LV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low RDS(ON)

Applications
- High current load applications
- Load switching
- Hard switched and high frequency circuits
- Uninterruptible power supply

Package



TO-252



Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Symbol	Parameter		Limit	Unit
VDS	Drain-source Voltage		30	V
VGS	Gate-source Voltage		±20	V
ID	Drain Current	TC=25℃	80	A
		TC=100℃	51	
IDM	Pulsed Drain Current A		190	A
PD	Total Power Dissipation	TC=25℃	45	W
		TC=100℃	22.5	W
EAS	Single Pulse Avalanche Energy B		205	mJ
RθJC	Thermal Resistance Junction-to-Case C		3.0	℃/ W
TJ ,TSTG	Junction and Storage Temperature Range		-55～+175	℃

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Electrical Characteristics (T_J=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Static Parameter						
BVDSS	Drain-Source Breakdown Voltage	VGS= 0V, ID=250μA	30			V
IDSS	Zero Gate Voltage Drain Current	VDS=30V,VGS=0V			1	μA
IGSS	Gate-Body Leakage Current	VGS= ±20V, VDS=0V			±100	nA
VGS(th)	Gate Threshold Voltage	VDS= VGS, ID=250μA	1.0	1.5	2.5	V
RDS(ON)	Static Drain-Source On-Resistance	VGS= 10V, ID=20A		3.8	5.5	mΩ
		VGS= 4.5V, ID=15A		6.2	8.0	
VSD	Diode Forward Voltage	IS=20A,VGS=0V		0.80	1.2	V
IS	Maximum Body-Diode Continuous Current				80	A
Dynamic Parameters						
Ciss	Input Capacitance	VDS=15V,VGS=0V,f=1MHZ		2150		pF
Coss	Output Capacitance			435		
Crss	Reverse Transfer Capacitance			252		
Switching Parameters						
Qg	Total Gate Charge	VGS=10V,VDS=15V,ID=20A		52.8		nC
Qgs	Gate-Source Charge			12.3		
Qgd	Gate-Drain Charge			10.8		
Qrr	Reverse Recovery Charge	IF=20A, di/dt=100A/us		28		
trr	Reverse Recovery Time			27		ns
tD(on)	Turn-on Delay Time	VGS=10V,VDD=20V, ID=2A,RL=1Ω RGEN=3Ω		9		
tr	Turn-on Rise Time			15.5		
tD(off)	Turn-off Delay Time			29		
tf	Turn-off fall Time			9		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

B. T_j=25℃, V_{DS}=30V V_{DD}=15V V_{GS}=10V L=0.5mH.

C. RθJA is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. RθJC is guaranteed by design, while RθJA is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper.

Typical Performance Characteristics

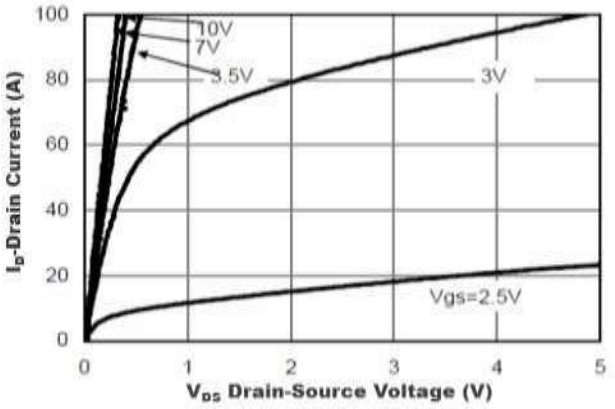


Figure1. Output Characteristics

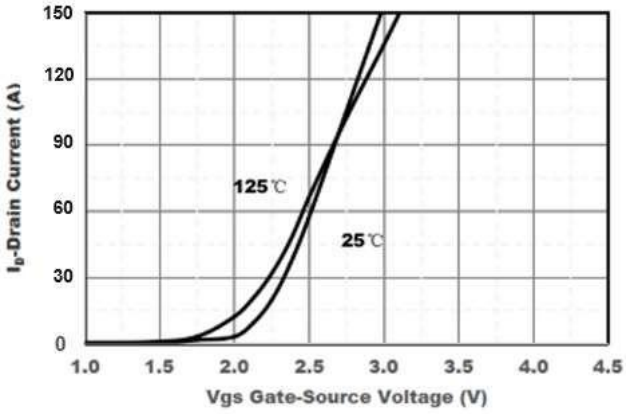


Figure2. Transfer Characteristics

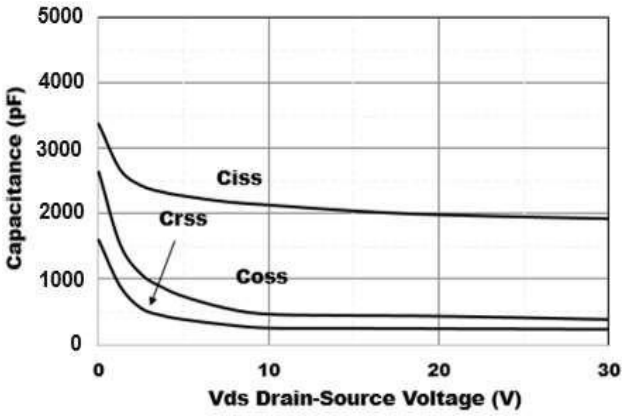


Figure3. Capacitance Characteristics

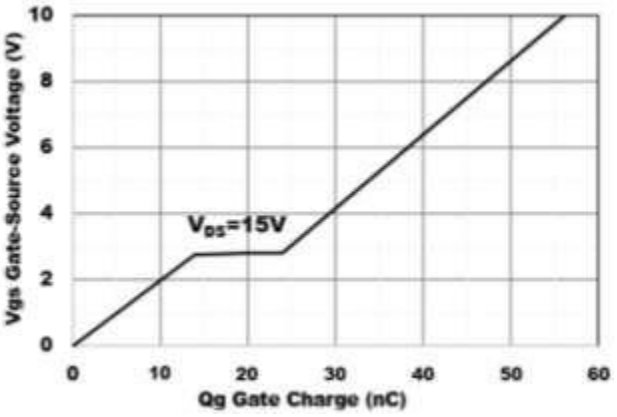


Figure4. Gate Charge

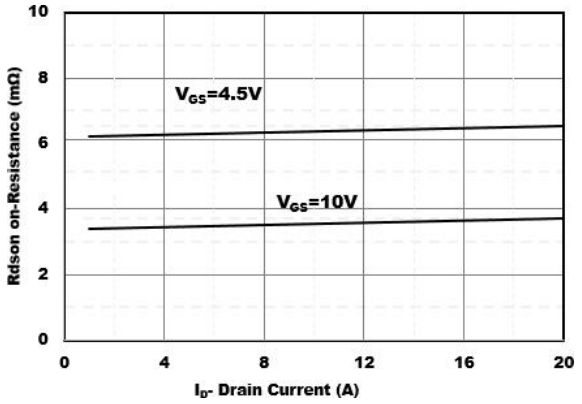


Figure5. Drain-Source on Resistance

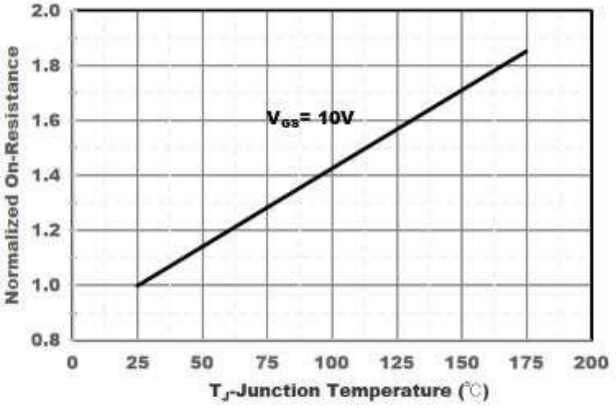


Figure6. Drain-Source on Resistance

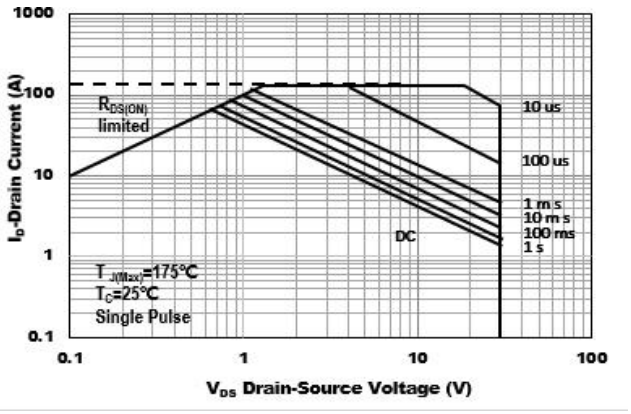


Figure7. Safe Operation Area

Test Circuit

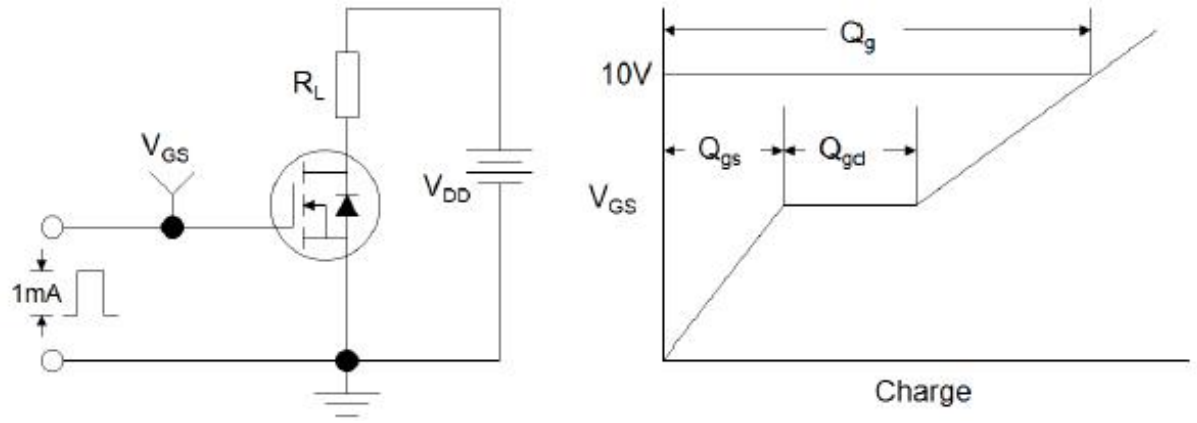


Figure1:Gate Charge Test Circuit & Waveform

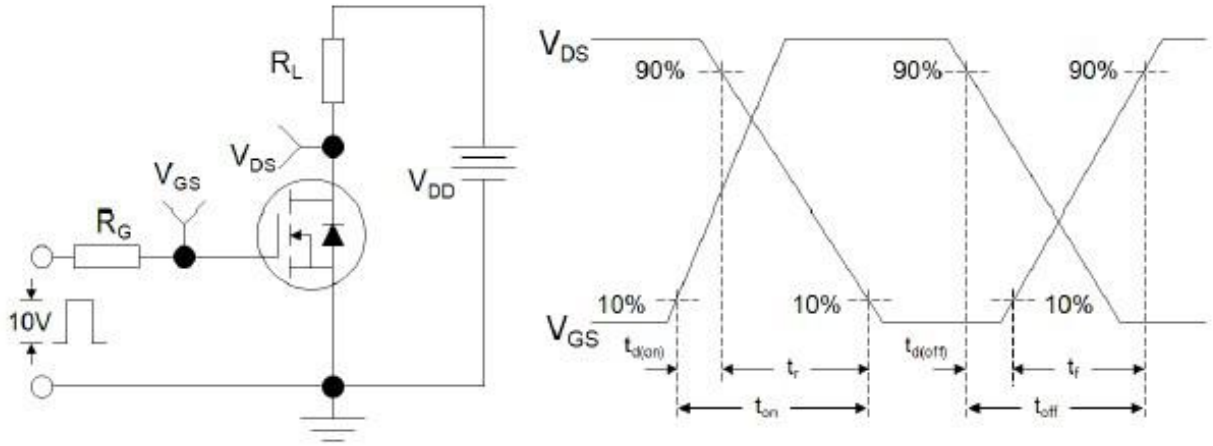


Figure 2: Resistive Switching Test Circuit & Waveforms

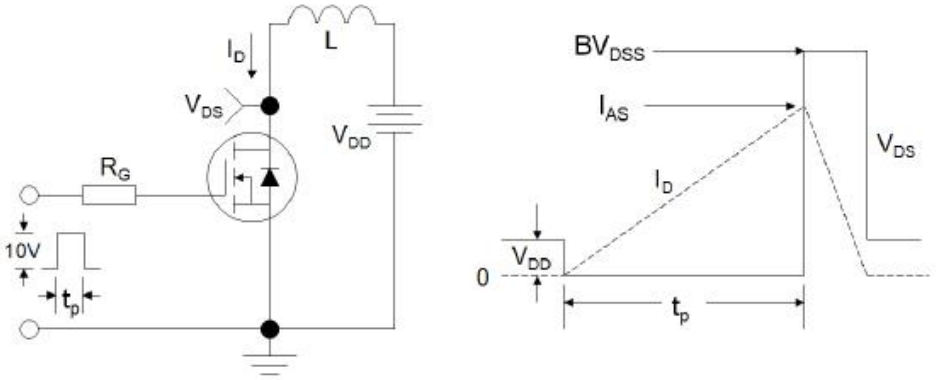


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

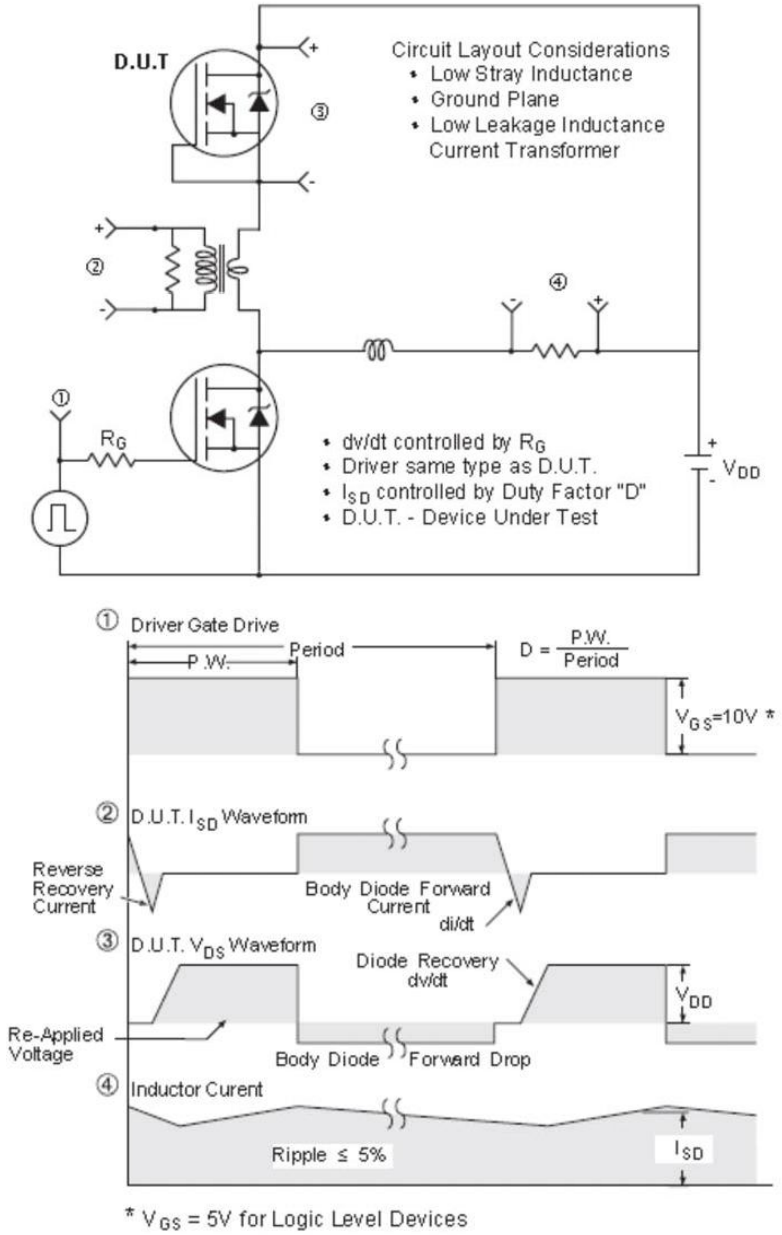
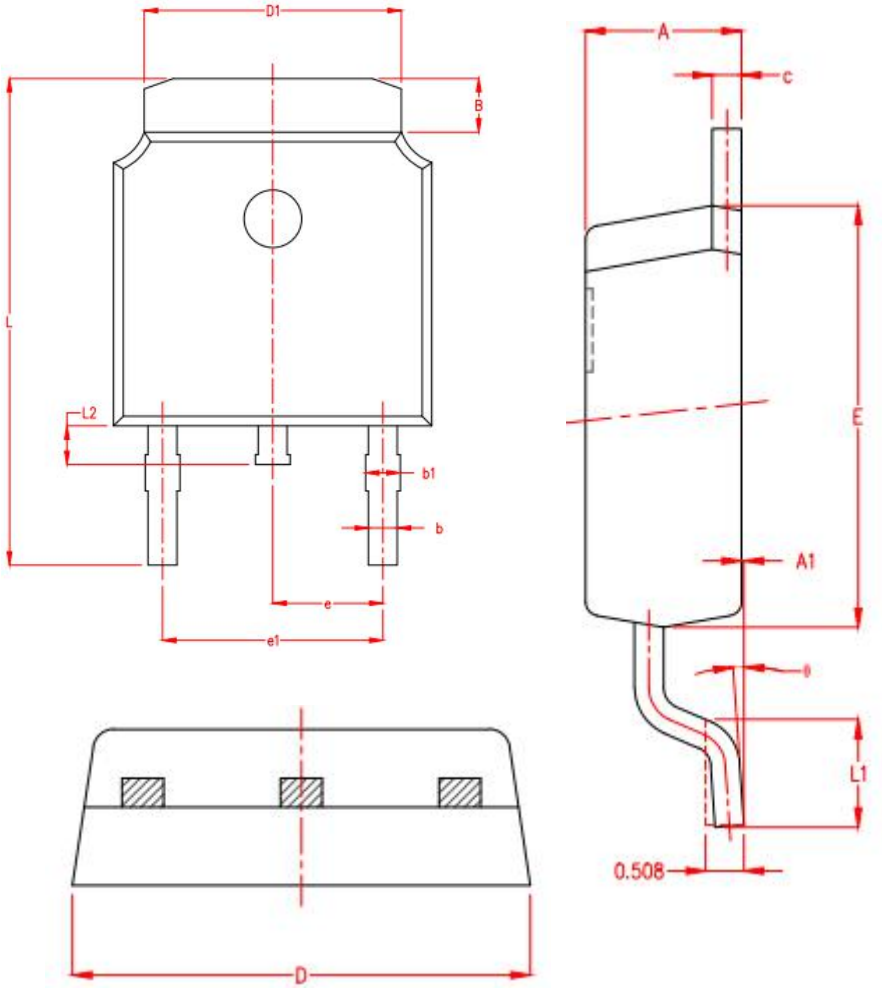


Figure 4:Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)

TO-252 Package Information



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	2.15	2.25	2.35
A1	0.00	0.06	0.12
B	0.96	1.11	1.26
b	0.59	0.69	0.79
b1	0.69	0.81	0.93
c	0.34	0.42	0.50
D	6.45	6.60	6.75
D1	5.23	5.33	5.43
E	5.95	6.10	6.25
e	2.286TYP.		
e1	4.47	4.57	4.67
L	9.90	10.10	10.30
L1	1.40	1.55	1.70
L2	0.60	0.80	1.00
θ	0°	4°	8°