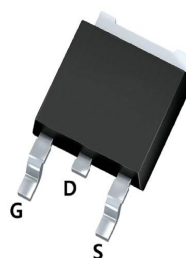




1.Features

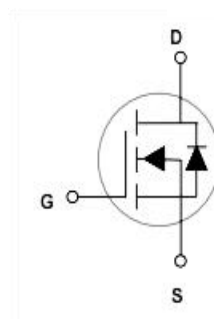
- V_{DS} 100V
- I_D (at $V_{GS}=10V$) 18A
- $R_{DS(on)}$ (at $V_{GS}=10V$) 61m Ω (Typ)

TO-252



2.Mechanical Data

- Case:Molded Plastic,TO-252;
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: marked on body.
- Mounting Position : Any.



- 1.Gate
2. Drain
3. Source

3.Maximum Ratings and Electrical Characteristics

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Characteristics	Symbol	Ratings		Unit
Drain-Source Voltage $T_C = 25\text{ }^{\circ}\text{C}$	V_{DS}	100		V
Gate-Source Voltage $T_C = 25\text{ }^{\circ}\text{C}$	V_{GS}	± 20		V
Drain Current (DC) $T_C = 25\text{ }^{\circ}\text{C}$, $V_{GS} = 10\text{ V}$	I_D	18		A
Drain Current (Pulsed) ⁽¹⁾⁽²⁾⁽³⁾ $T_C = 25\text{ }^{\circ}\text{C}$, $V_{GS} = 10\text{ V}$	I_{DM}	60		
Drain power dissipation $T_C = 25\text{ }^{\circ}\text{C}$	P_{tot}	50		W
Continuous-Source Current ⁽¹⁾ $T_C = 25\text{ }^{\circ}\text{C}$	I_S	18		A
Single Pulsed Avalanche energy $V_{DD}=50\text{V}$, $L=0.1\text{mH}$	E_{AS}	5		mJ
Storage Temperature	T_{stg}	-55 to +150		$^{\circ}\text{C}$
Junction Temperature	T_J	150		$^{\circ}\text{C}$
Thermal Characteristics				
Parameter	Symbol	Typ	Max	Unit
Thermal Resistance, Junction-to-Ambient ⁽²⁾	$R_{\theta JA}$	-	50	$^{\circ}\text{C/W}$
Thermal Resistance, Junction-to-Case ⁽²⁾	$R_{\theta JC}$	-	2.5	$^{\circ}\text{C/W}$



Characteristics	Symbol	Test conditions	Min	TYP	Max	Unit
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V,I _D =250μA	100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 80V,V _{GS} = 0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V,V _{DS} = 0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250μA	1	1.75	2	V
Drain-Source On-State Resistance ⁽¹⁾	R _{DS(on)}	V _{GS} =10V, I _D =3A	-	61	73	mΩ
		V _{GS} =4.5V, I _D =2A	-	65	84	
DYNAMIC PARAMETERS						
Input Capacitance	C _{iss}	V _{DS} =50V	-	1616	-	pF
Output Capacitance	C _{oss}	V _{GS} =0V	-	35	-	
Reverse Transfer Capacitance	C _{rss}	f=1.0MHZ	-	27	-	
SWITCHING PARAMETERS						
Turn-on Delay Time	t _{d(on)}	V _{DS} =50V, V _{GEN} =10V R _G =4.5Ω; I _{DS} =3A, R _L = 16.6Ω;	-	7.1	-	nS
Turn-on Rise Time	t _r		-	4.3	-	
Turn-off Delay Time	t _{d(off)}		-	32	-	
Turn-off Fall Time	t _f		-	12	-	
Total Gate Charge	Q _g	V _{DS} =50V, I _D =3A V _{GS} =10V	-	27	-	nC
Gate-Source Charge	Q _{gs}		-	6.2	-	
Gate-Drain Charge	Q _{gd}		-	3.4	-	
Diode Forward Voltage ⁽¹⁾	V _{SD}	I _{SD} = 3A,V _{GS} =0V	-	-	1.3	V
Reverse Recovery Time	t _{rr}	I _{DS} = 3 A, V _{GS} = 0 V	-	21	-	nS
Reverse Recovery Charge	Q _{rr}	dI _{SD} /dt = 100 A/μs	-	23	-	nC

Notes:

1. pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
2. Surface Mounted on minimum footprint pad area.
3. Limited by bonding wire
4. Guaranteed by design, not subject to production testing



4. Rating And Characteristic Curves

Fig.1 Power Capability

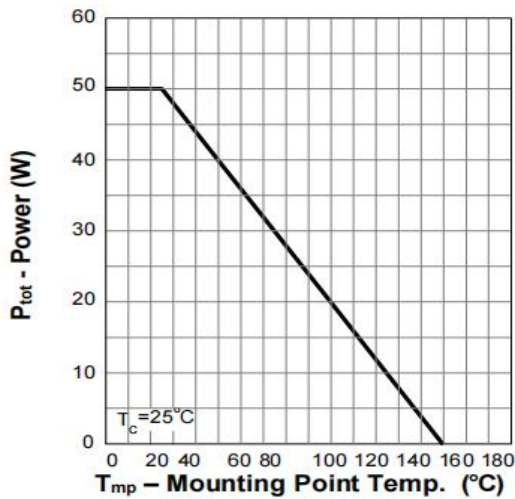


Fig.2 Current Capability

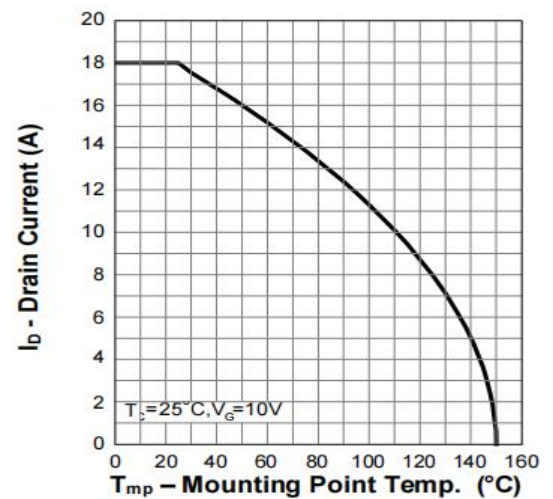


Fig.3 Safe Operating Area

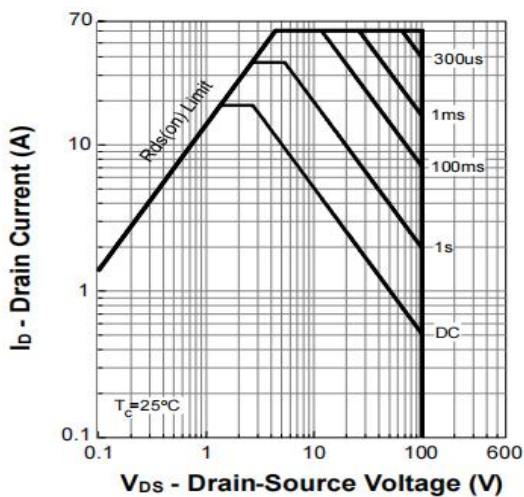


Fig.4 Transient Thermal Impedance

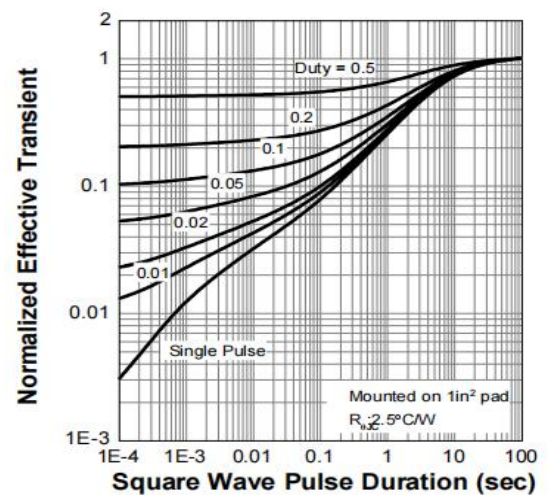


Fig.5 Output Characteristics

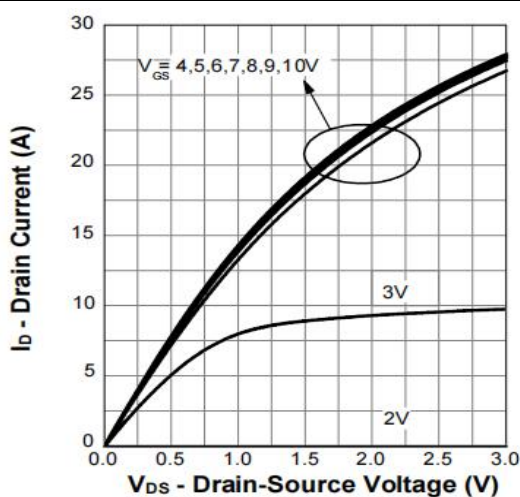


Fig.6 On Resistance

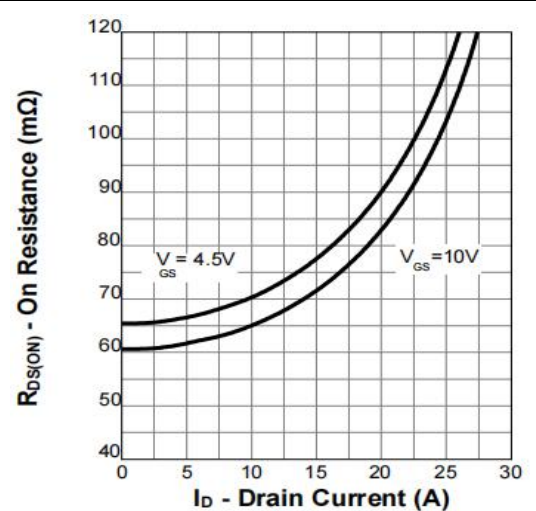




Fig.7 Transfer Characteristics

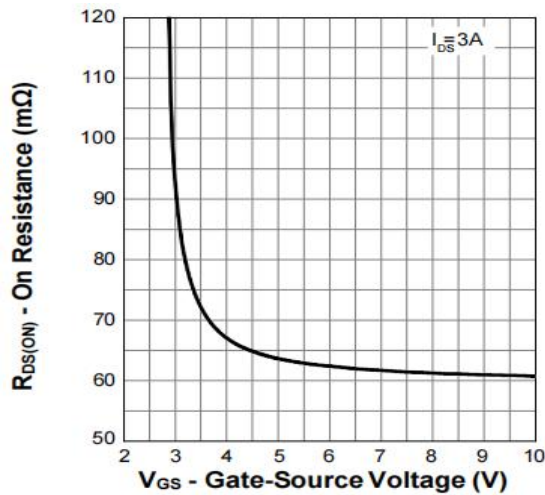


Fig.8 Normalized Threshold Voltage

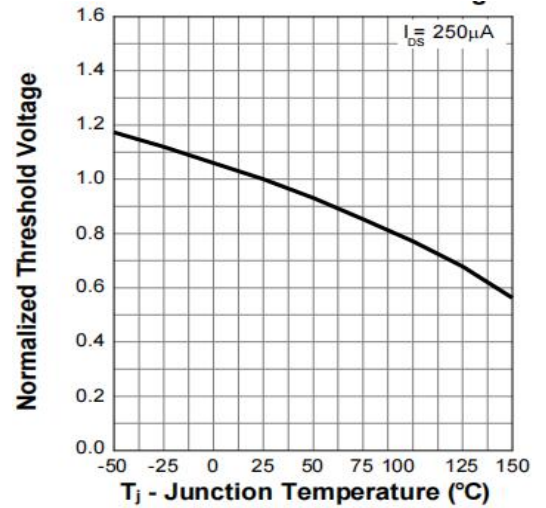


Fig.9 Normalized On Resistance

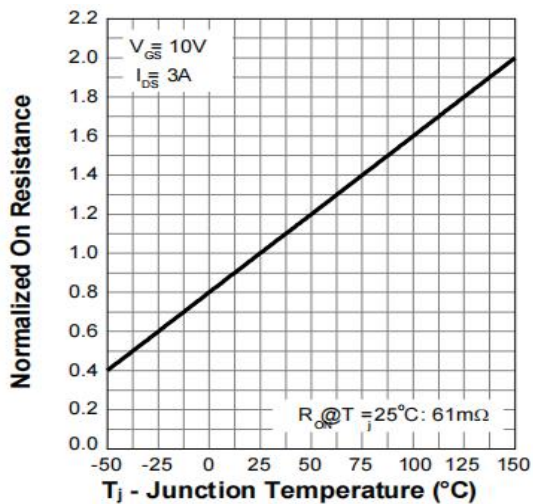


Fig.10 Diode Forward Current

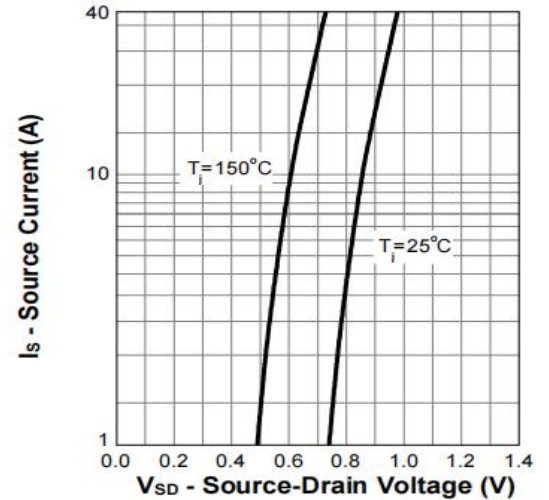


Fig.11 Capacitance

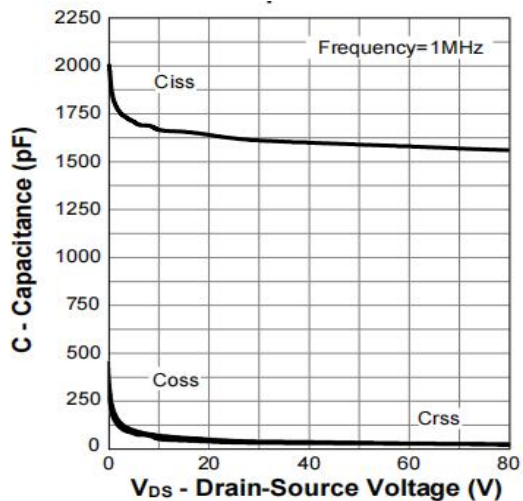
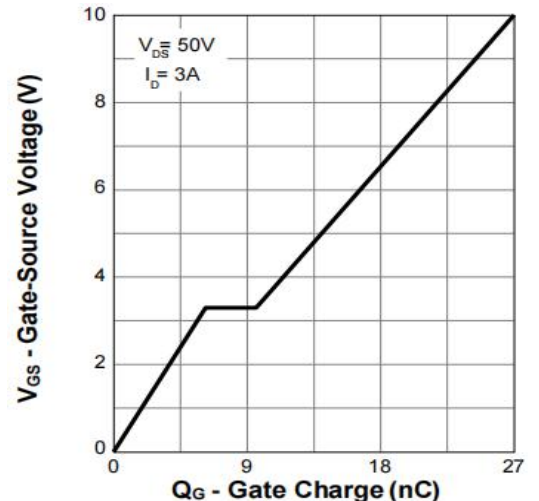
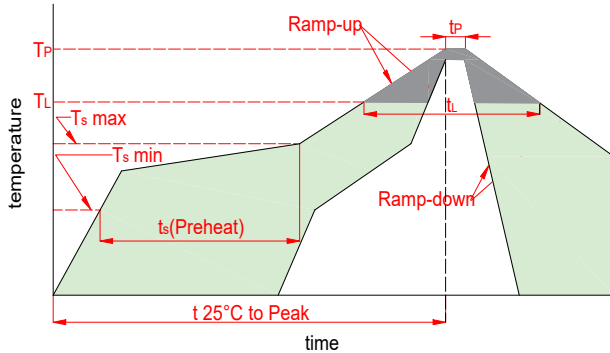


Fig.12 Gate Charge



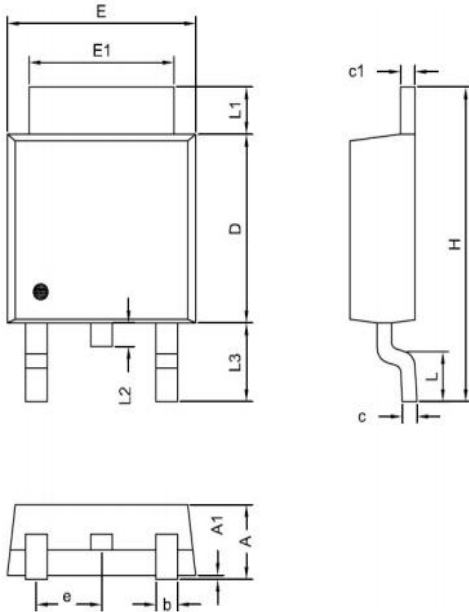


5. Soldering Parameters



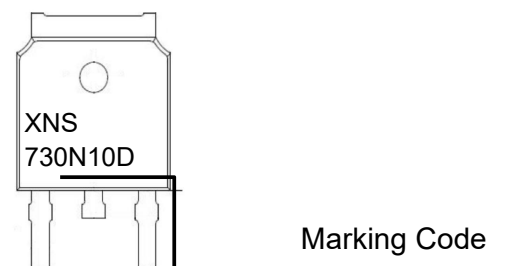
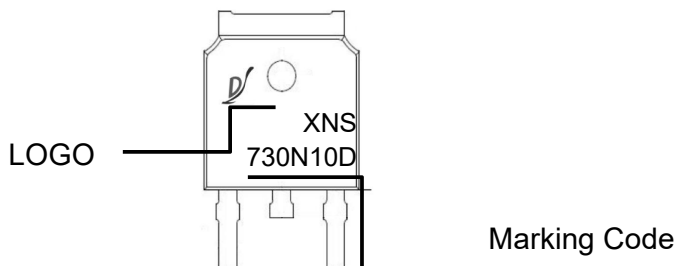
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150℃
	Temp. max(T_s (min))	200℃
	Time(min to max)(t_s)	60~180s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_s (max) to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260 ^{+0/-5} ℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_p)		8 minutes max
Do not exceed		260℃

6.Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.086	0.094	2.19	2.38
A1	0.001	0.005	0.02	0.13
D	0.209	0.252	5.30	6.40
E	0.250	0.268	6.35	6.80
E1	0.205	0.217	5.20	5.50
c	0.016	0.024	0.40	0.60
c1	0.016	0.024	0.40	0.60
b	0.022	0.033	0.55	0.85
e	2.3BCS			
L	0.039	0.071	1.00	1.80
L1	0.028	0.071	0.70	1.80
L2	0.7BCS			
L3	0.094	0.110	2.40	2.80
H	0.362	0.409	9.20	10.40

7.Test circuits



8. Package Information

Package	Part Number
TO-252	2500



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