

N-Channel Power MOSFET

FEATURES

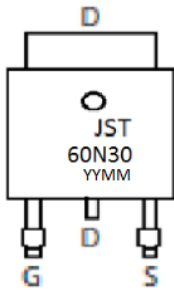
$R_{DS(ON)} \leq 9m\ \Omega$ @VGS=10V

$R_{DS(ON)} \leq 12m\ \Omega$ @VGS=4.5V

APPLICATIONS

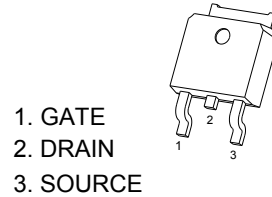
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

MARKING

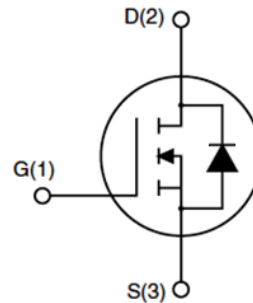


YYMM=Date Code

TO-252-2L



EQUIV ALENT CIRCUIT



MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	60	A
Pulsed Drain Current	I_{DM}	240	A
Single Pulsed Avalanche Energy	$E_{AS}^{(1)}$	75	mJ
Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 ~ +150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10s)	T_L	260	$^\circ\text{C}$

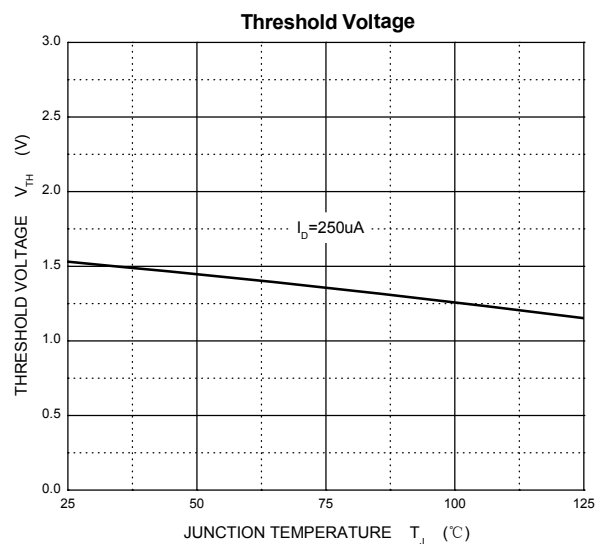
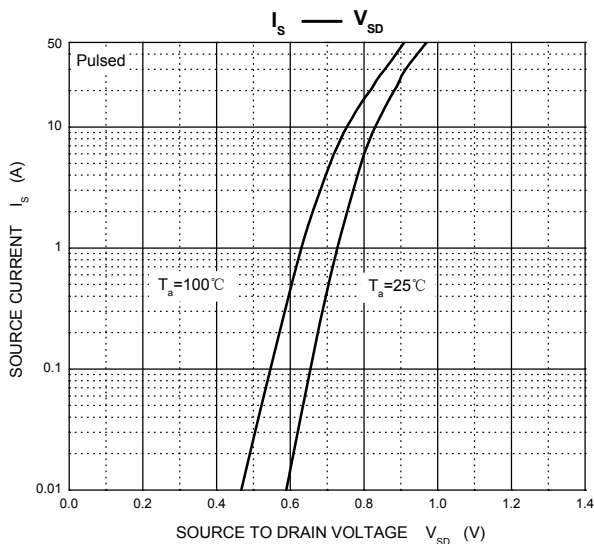
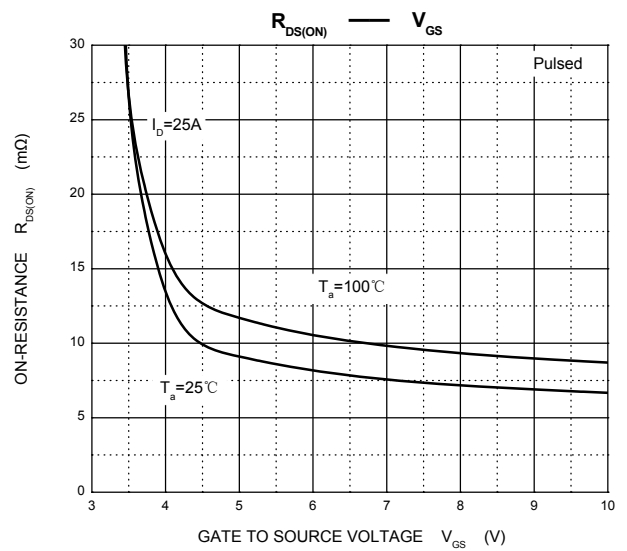
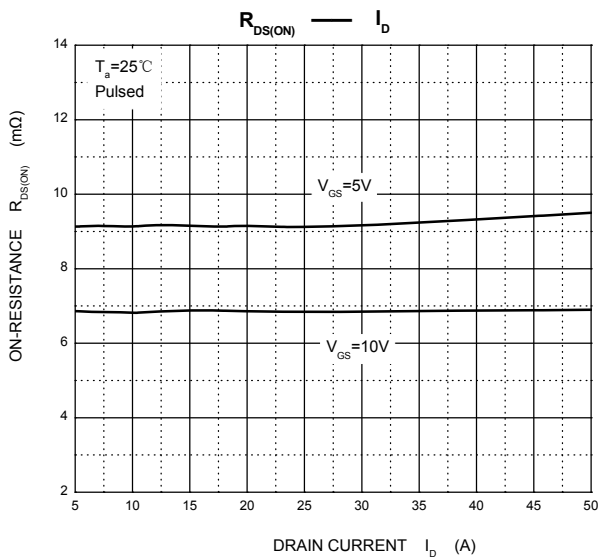
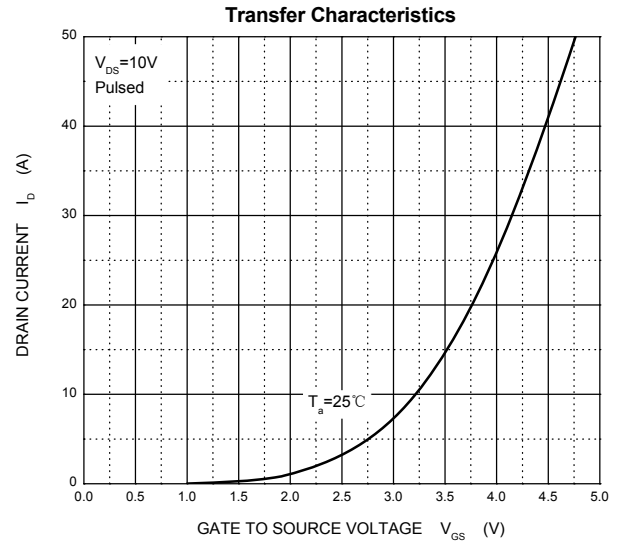
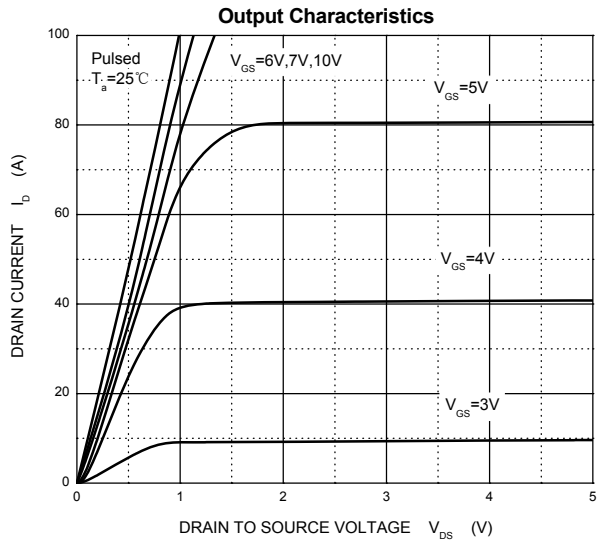
(1). E_{AS} condition: $V_{DD}=20V, L=0.5mH, R_G=25\Omega$, Starting $T_J = 25^\circ\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS
T_a=25 °C unless otherwise specified

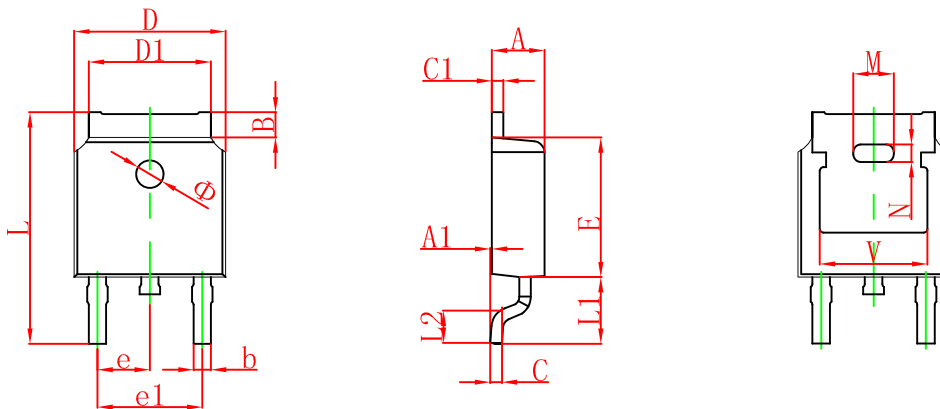
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =250μA	30	34		V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
On characteristics (note1)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.7	3.0	V
Static drain-source on-state resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =15A		9.5	12	mΩ
		V _{GS} =10V, I _D =15A		7	9	mΩ
Forward transconductance	g _{FS}	V _{DS} =5V, I _D =15A	15			S
Dynamic characteristics (note 2)						
Input capacitance	C _{iSS}	V _{DS} =15V, V _{GS} =0V, f =1MHz		2000		pF
Output capacitance	C _{oSS}			280		
Reverse transfer capacitance	C _{rSS}			160		
Switching characteristics (note 2)						
Total gate charge	Q _g	V _{DS} =10V, V _{GS} =10V, I _D =25A		23		nC
Gate-source charge	Q _{gs}			7		
Gate-drain charge	Q _{gd}			4.5		
Turn-on delay time	t _{d(on)}	V _{DD} =15V, I _D =20A, V _{GS} =10V, R _G =1.8Ω		10		ns
Turn-on rise time	t _r			8		
Turn-off delay time	t _{d(off)}			30		
Turn-off fall time	t _f			5		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V _{SD}	V _{GS} =0V, I _S =10A			1.2	V
Continuous drain-source diode forward current	I _S				60	A
Pulsed drain-source diode forward current	I _{SM}				240	A

Notes:

1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. Guaranteed by design, not subject to production.



TO-252(4R)-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
c1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778REF.		0.070REF.	
N	0.762REF.		0.018REF.	
L	9.800	10.400	0.386	0.409
L1	2.9REF.		0.114REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Φ	1.100	1.300	0.043	0.051

Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.