

24V Dual N-Channel Mosfet

FEATURES

- $R_{SS(ON)}=7.8m\Omega(Typ.) @V_{GS}=4.5V$
- $R_{SS(ON)}=8.2m\Omega(Typ.) @V_{GS}=3.9V$
- $R_{SS(ON)}=9.7m\Omega(Typ.) @V_{GS}=2.5V$

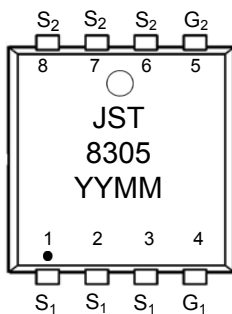
TDFN3*3-8L



APPLICATIONS

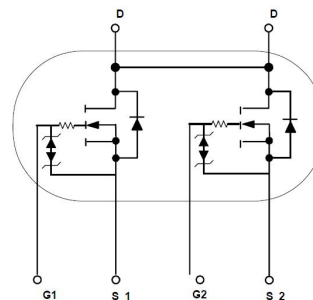
- Portable appliances
- Power management

MARKING



YYMM:Date Code(year & month)

N-CHANNEL MOSFET



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

Symbol	Parameter	Min	Max	Unit
V_{DS}	Drain-Source Voltage	24	-	V
V_{GS}	Gate-Source Voltage	-	± 12	V
I_D	Drain Current ^{note1} $V_{GS}=4.5V$	-	58	A
I_{DM}	Pulsed Drain Current ^{note1,note2,note3} $V_{GS}=4.5V$	-	100	A
P_{tot}	Total Power Dissipation ^{note1}	$T_C=25^{\circ}C$	31	W
		$T_C=100^{\circ}C$	12.4	
T_{stg}	Storage Temperature	- 55	150	$^{\circ}C$
T_J	Junction Temperature	-	150	$^{\circ}C$
I_S	Diode Forward Current ^{note1}	-	58	A
$R_{\theta JC}$	Thermal Resistance- Junction to Ambient ^{note1}	-	4	$^{\circ}C / W$

MOSFET ELECTRICAL CHARACTERISTICS $T_c=25\text{ }^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = 250\text{ }\mu\text{A}$	24	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\text{ }\mu\text{A}$	0.5	-	1.0	V
I_{DSS}	Drain Leakage Current	$V_{DS} = 20\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	μA
		$T_J = 85\text{ }^\circ\text{C}$	-	-	30	μA
I_{GSS}	Gate Leakage Current	$V_{GS} = \pm 10\text{ V}, V_{DS} = 0\text{ V}$	-	-	± 10	μA
$R_{SS(ON)}$	Static Source to Source On-Resistance ^{note2}	$V_{GS} = 4.5\text{ V}, I_{DS} = 8\text{ A}$	-	7.8	9.0	m Ω
		$V_{GS} = 3.9\text{ V}, I_{DS} = 8\text{ A}$	-	8.2	9.7	
		$V_{GS} = 2.5\text{ V}, I_{DS} = 8\text{ A}$	-	9.7	11	
Diode Characteristics						
V_{SD}	Diode Forward Voltage ^{note2}	$I_{SD} = 1\text{ A}, V_{GS} = 0\text{ V}$	-	-	1.3	V
Dynamic Characteristics^{note4}						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 10\text{ V}$ $f = 1\text{ MHz}$	-	2322	-	pF
C_{oss}	Output Capacitance		-	300	-	
C_{rss}	Reverse Transfer Capacitance		-	277	-	
$t_d(on)$	Turn-on Delay Time	$V_{DS} = 10\text{ V}, V_{GEN} = 4.5\text{ V},$ $R_G = 6\text{ }\Omega, R_L = 3.3\text{ }\Omega,$ $I_{DS} = 3\text{ A}$	-	8.3	-	ns
t_r	Turn-on Rise Time		-	34.6	-	
$t_d(off)$	Turn-off Delay Time		-	406.7	-	
t_f	Turn-off Fall Time		-	189.8	-	
Gate Charge Characteristics^{note4}						
Q_g	Total Gate Charge	$V_{GS} = 4.5\text{ V}, V_{DS} = 10\text{ V},$ $I_{DS} = 3\text{ A}$	-	41.1	-	nC
Q_{gs}	Gate-Source Charge		-	2.9	-	
Q_{gd}	Gate-Drain Charge		-	12.2	-	

Notes: 1. Surface Mounted on 1 in² pad area, $t \leq 10\text{ sec}$

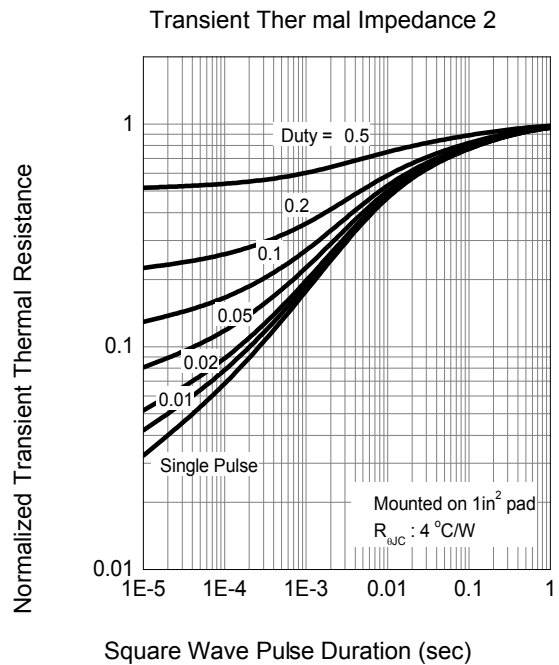
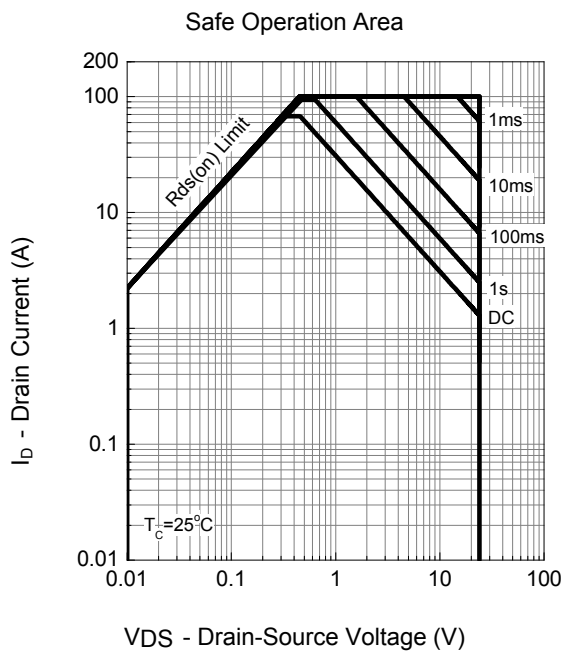
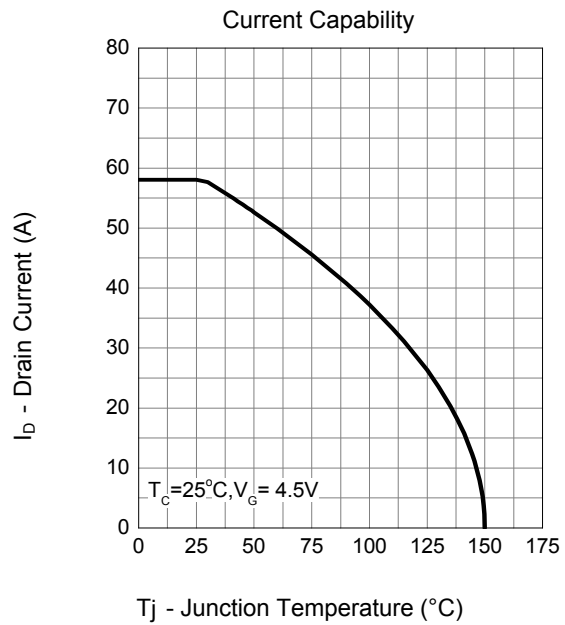
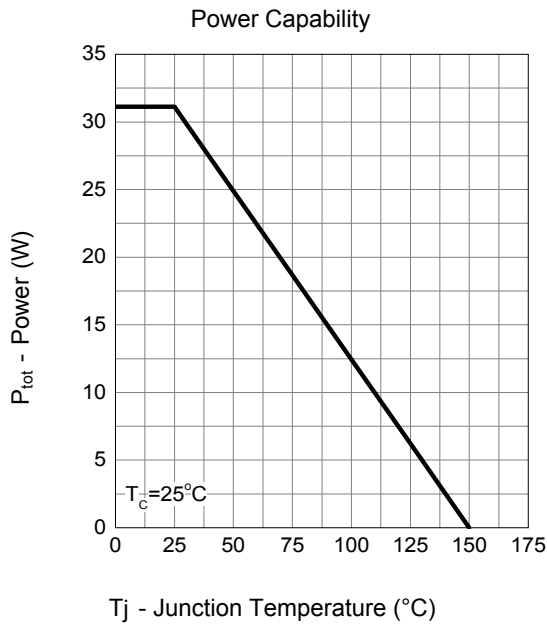
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

3. limited by bonding wire

4. Guaranteed by design, not subject to production testing.

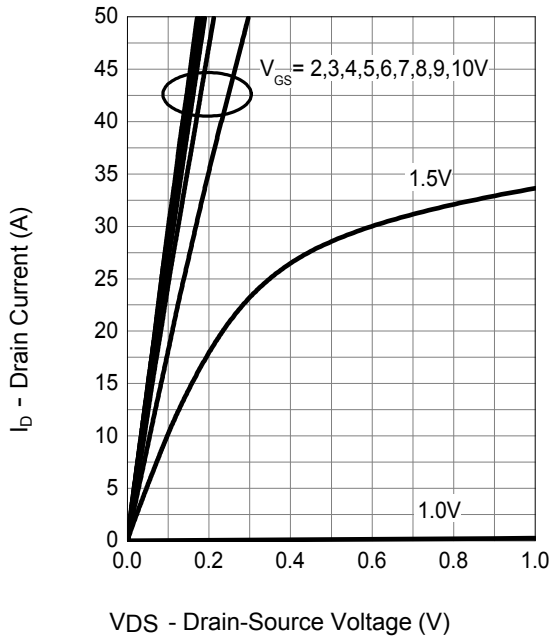
Typical Characteristics

N-channel:

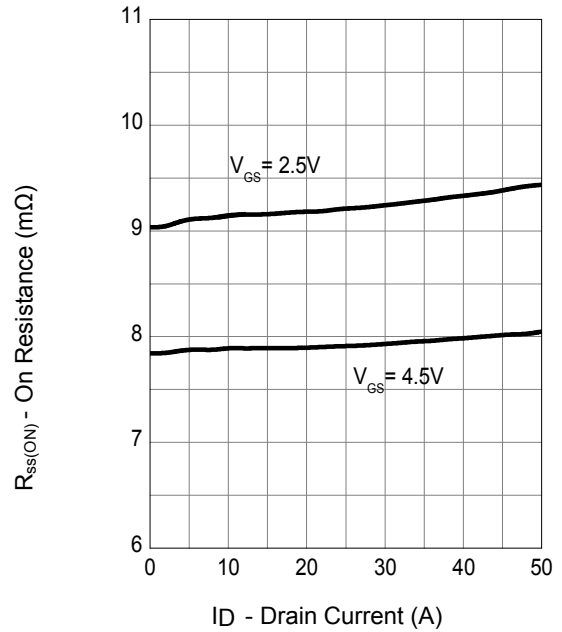


Typical Performance Characteristics (cont.)

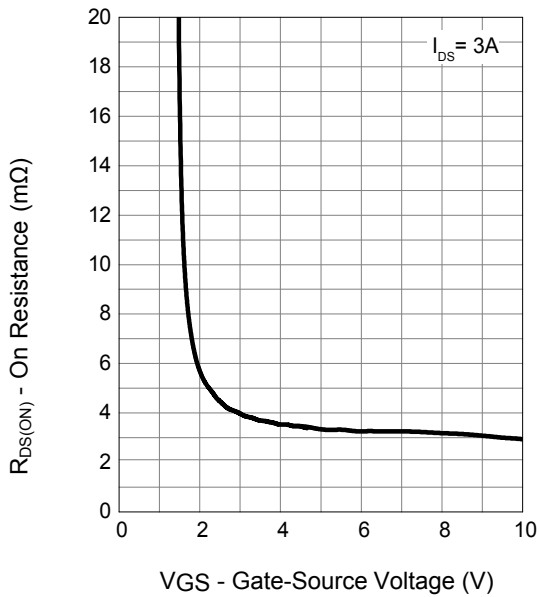
Output Characteristics



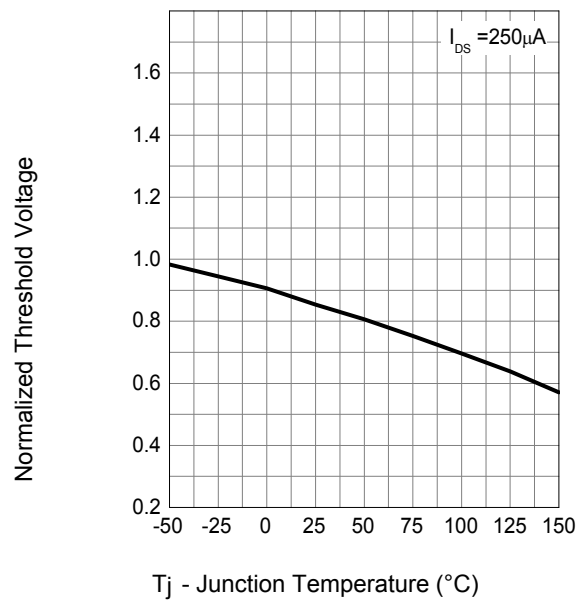
On Resistance



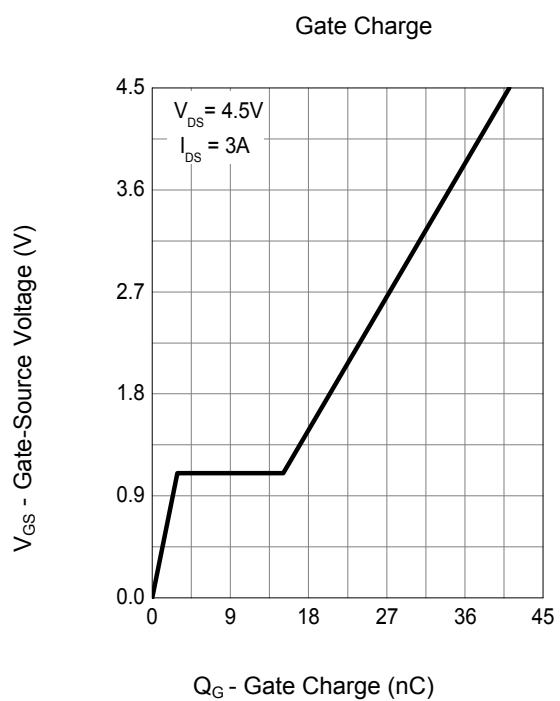
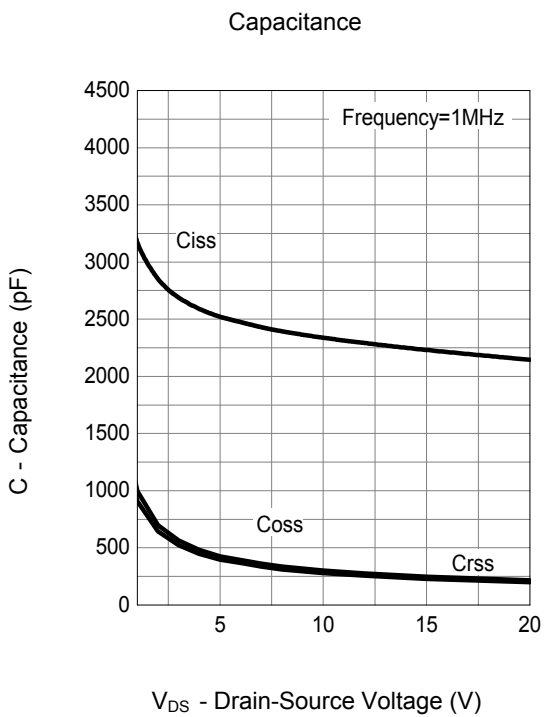
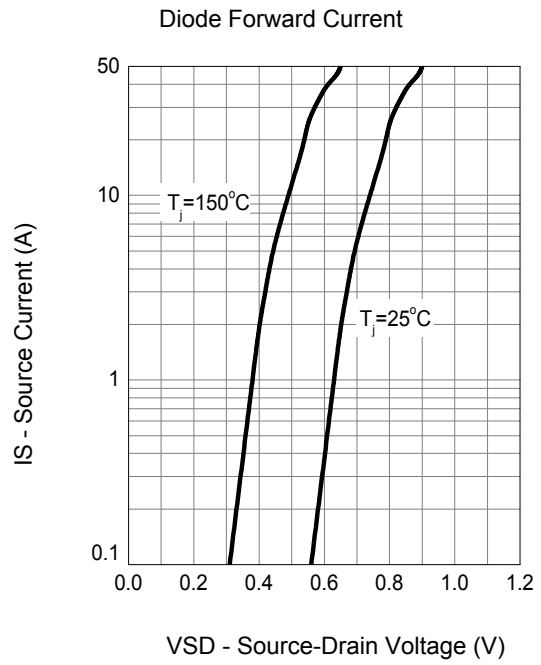
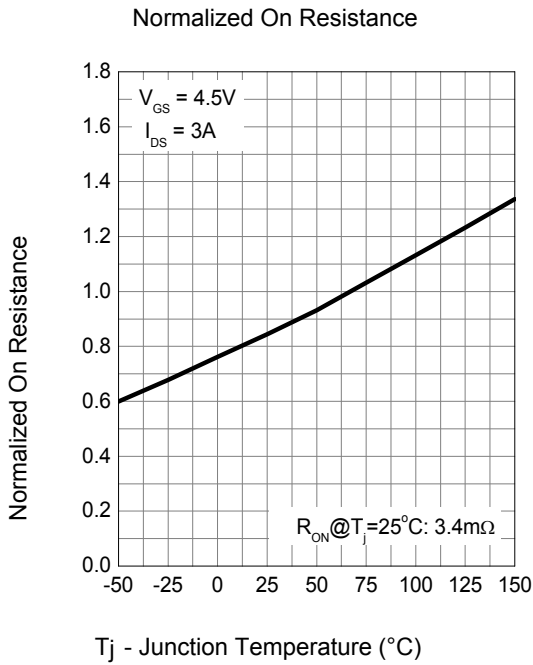
Transfer Characteristics



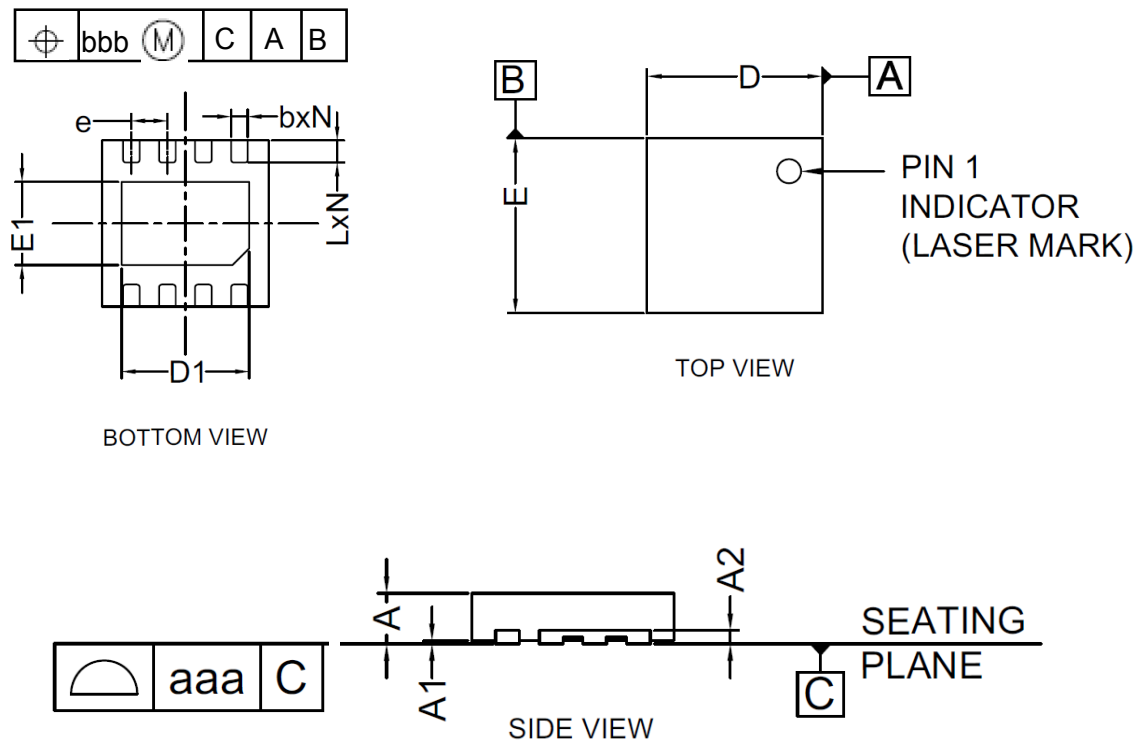
Normalized Threshold Voltage 1.8



Typical Performance Characteristics (cont.)



TDFN3*3-8L PACKAGE OUTLINE DRAWING



UNITS OF MEASURE=MILLIMETER

Symbol	Min	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A2	0.203		
b	0.25	0.30	0.35
D	2.924	3.00	3.076
D1	2.20	2.30	2.40
E	2.924	3.00	3.076
E1	1.40	1.50	1.60
e	0.65BSC		
L	0.35	0.40	0.45
K	0.20	-	
N	8		
aaa	0.08		
bbb	0.10		

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