



NKGLBDT

南科功率半导体

Product Specification

WEB | www.nkglbdt.com



南科场效应管选型



Description

The IRLML6344 is the new generation trench N-channel MOSFET has been designed to minimize the on-state resistance ($R_{DS(ON)}$) yet maintain superior switching performance, making it ideal for high efficiency power management applications

Features

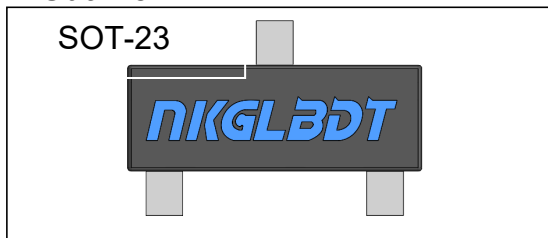
- 30V, 5.8A, $R_{DS(ON)} = 18m\Omega @ V_{GS} = 10V$
- Improved dv/dt capability
- Fast switching
- Green Device Available

Applications

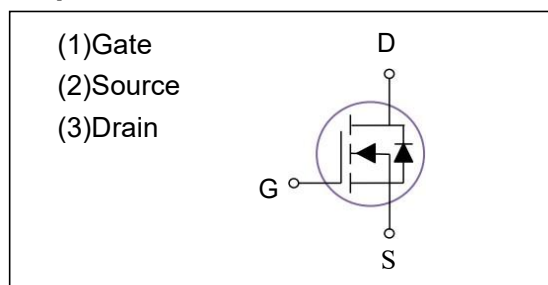
- Notebook
- Load Switch
- Power Management
- LED applications

V_{DSS}	30V
I_D	5.8A
$R_{DS(ON)}$	$18m\Omega @ V_{GS}=10V$
$R_{DS(ON)}$	$22m\Omega @ V_{GS}=4.5V$

Outline



Equivalent



Packaging specifications

Part No.	Package	Marking	Basic ordering unit.(pcs)
IRLML6344	SOT-23		3000

Absolute Maximum Ratings

Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 12	V
Drain Current-Continuous ^(Note 2)	$T_A = 25^\circ C$	I_D	5.8	A
	$T_A = 70^\circ C$		4.6	A
-Pulsed ^(Note 1, Note 2)		I_{DM}	23	A
Maximum Power Dissipation	$T_A = 25^\circ C$	P_D	1.56	W
	$T_A = 70^\circ C$		1	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^\circ C$
Thermal Resistance Junction-Ambient		$R_{\theta JA}$	80	$^\circ C / W$

Electrical Characteristics (TC=25 °C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V , I _D =250uA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V , V _{GS} =0V			1	uA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±12V , V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250uA	0.5	0.9	1.3	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V , I _D =5.8A		18	24	mΩ
		V _{GS} =2.5V , I _D =2A		22	28	mΩ
DYNAMIC CHARACTERISTICS Note4						
Input Capacitance	C _{ISS}	V _{DS} =10V , V _{GS} =0 V , f =1.0MHz		660		pF
Output Capacitance	C _{OSS}			50		pF
Reverse Transfer Capacitance	C _{RSS}			40		pF
Total Gate Charge	Q _g	V _{DS} =10V , I _D =4A , V _{GS} =4.5V		8.2		nC
Gate-Source Charge	Q _{gs}	V _{DS} =10V , I _D =4A , V _{GS} =4.5V		1.5		nC
Gate-Drain Charge	Q _{gd}			2.5		nC
SWITCHING CHARACTERISTICS Note4						
Turn-On Delay Time	t _{D(ON)}	V _{DD} =10V , I _D =1A , V _{GS} =4.5V , R _G =25Ω		4.8		ns
Rise Time	tr			15		ns
Turn-Off Delay Time	t _{D(OFF)}			27		ns
Fall Time	tf			8.6		ns
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Diode Forward Voltage	V _{SD}	V _{GS} =0V , I _S =3A			1	V

Notes:

- 1、Pulse Test Width < 300us,Duty Cycle< 2%
- 2、Drain current limited by maximum junction temperature.
- 3、Guaranteed by design,not subject to production testing.

Typical Performance Characteristics

Fig.1 Continuous Drain Current vs. TC

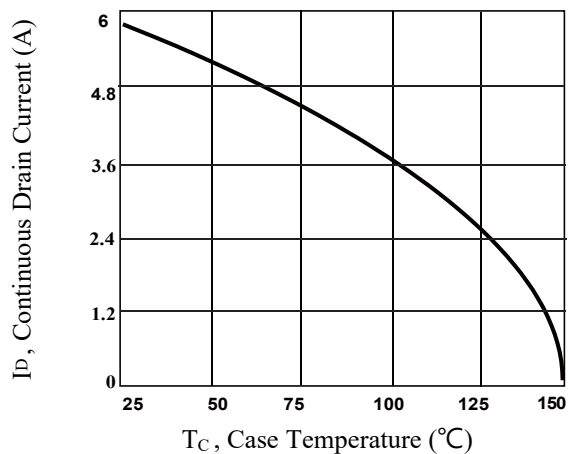


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

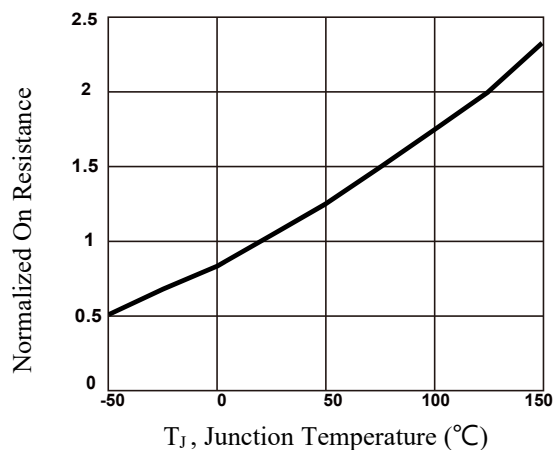


Fig.3 Normalized V_{th} vs. T_J

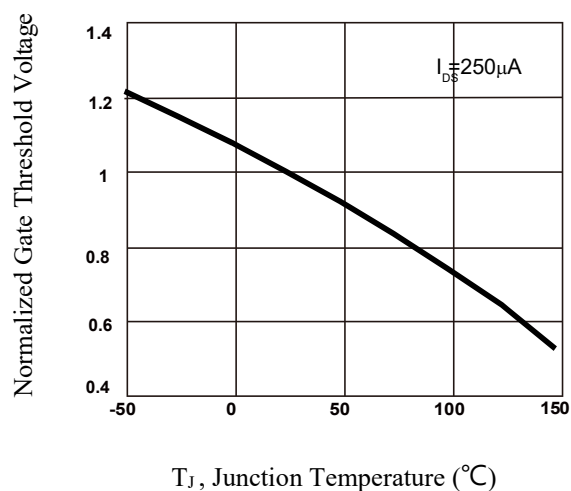


Fig.4 Gate Charge Waveform

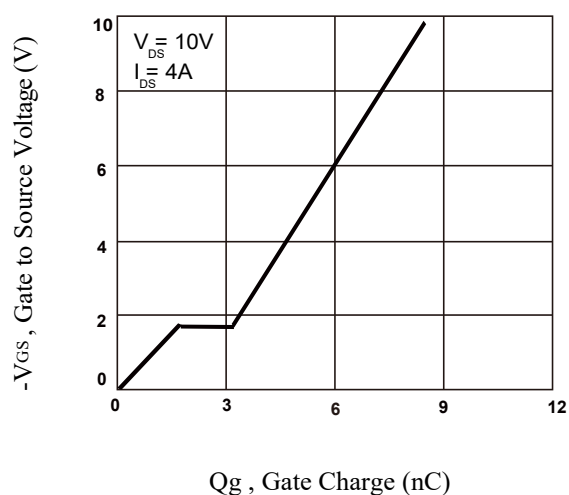


Fig.5 Typical Output Characteristics

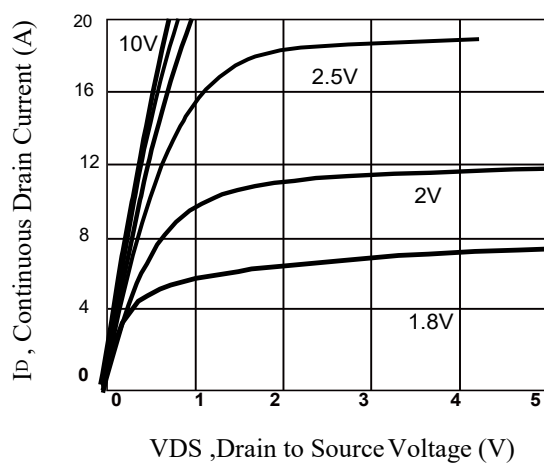


Fig.6 Capacitance

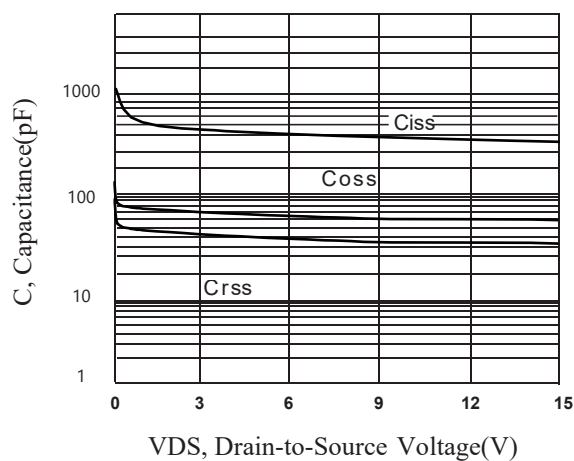


Fig.7 Turn-On Resistance vs. ID

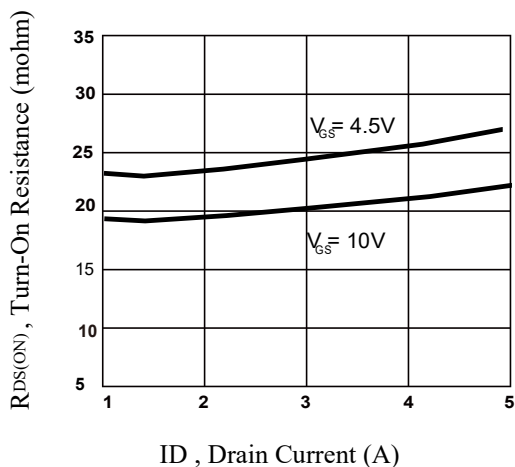


Fig.8 Typical Source-Drain Diode Forward Voltage

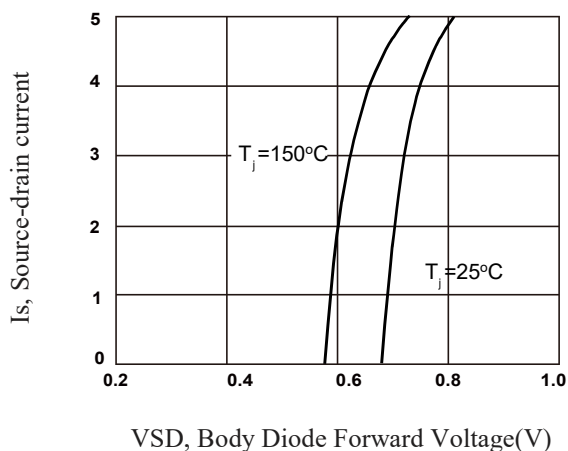


Fig.9 Normalized Transient Impedance

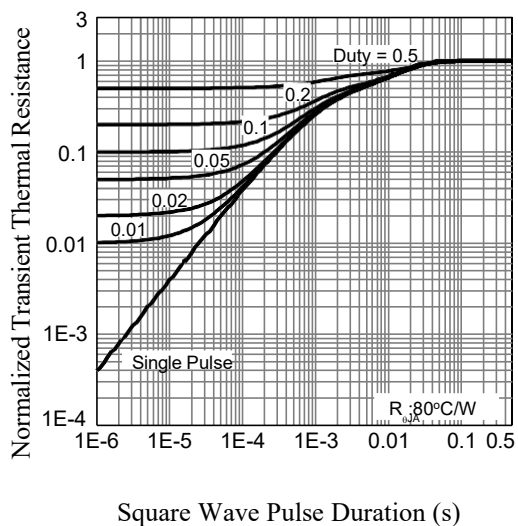


Fig.10 Maximum Safe Operation Area

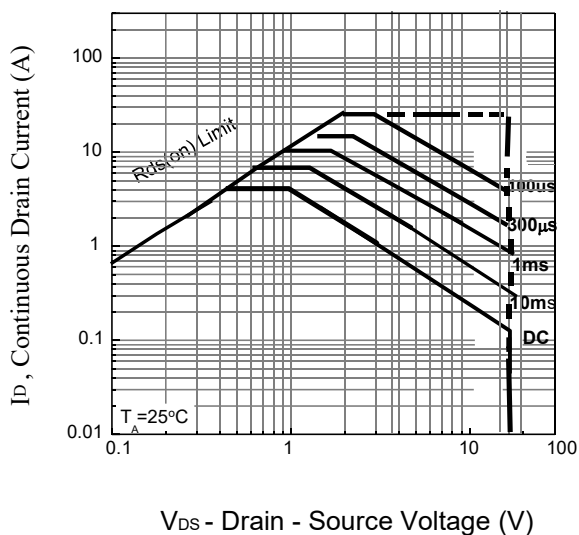


Figure11a. Switching Test Circuit

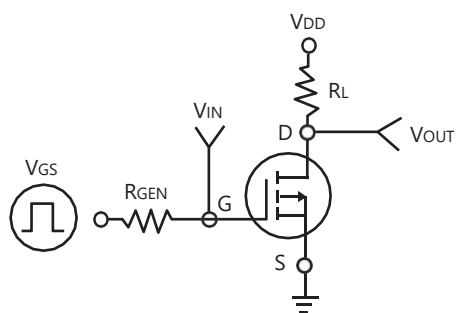
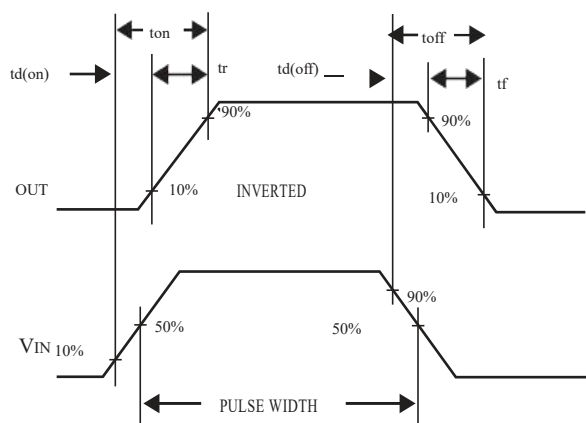
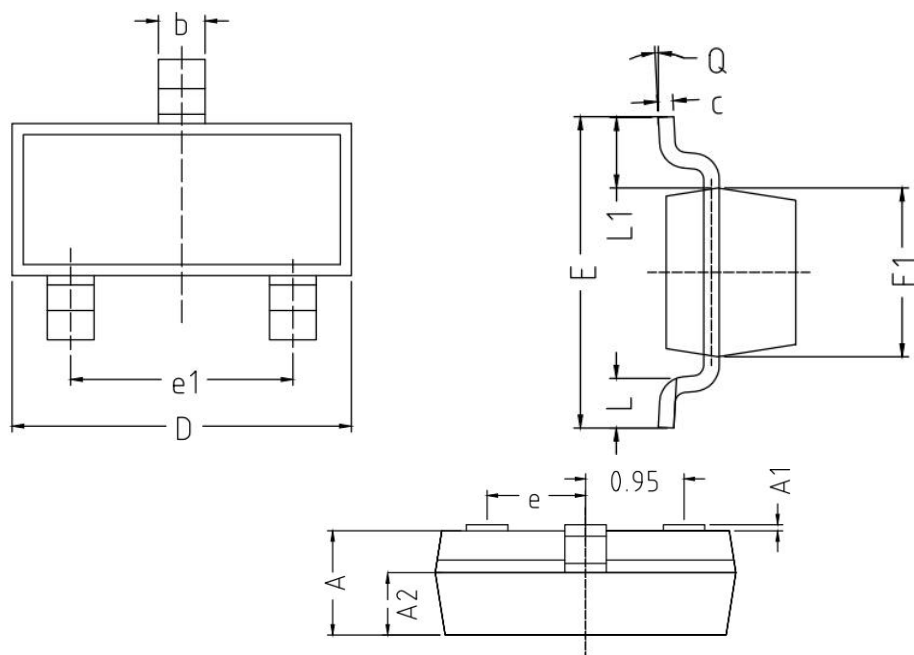


Figure 11b. Switching Waveforms



SOT-23 Package Information



SOT-23 PKG

SYMBOL	MIN	TYP	MAX
A	0.950	1.000	1.050
A1	0.000	0.050	0.100
A2	0.570	0.600	0.630
b	0.350	0.400	0.450
c	0.100	0.130	0.200
D	2.800	2.900	3.000
E	2.250	2.400	2.550
E1	1.200	1.300	1.400
e	0.950 TYP		
e1	1.800	1.900	2.000
L	0.290	0.390	0.490
L1	0.550REF		
Q	0°	4°	8°