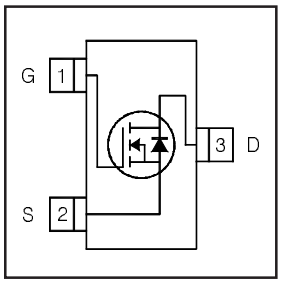
Toohong

IRLML8244TRPBF

HEXFET® Power MOSFET

V_{DS}	25	V
$V_{GS\ Max}$	± 20	V
$R_{DS(on)\ max}$ (@V_{GS} = 10V)	24	mΩ
$R_{DS(on)\ max}$ (@V_{GS} = 4.5V)	41	mΩ



Application(s)

- Load/ System Switch

Features and Benefits

Features		Benefits
Low $R_{DS(on)}$ (≤ 24mΩ)		Lower switching losses
Industry-standard pinout		Multi-vendor compatibility
Compatible with existing Surface Mount Techniques	results in	Easier manufacturing
RoHS compliant containing no lead, no bromide and no halogen	⇒	Environmentally friendly
MSL1, Consumer qualification		Increased reliability

Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	25	V
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ 10V	5.8	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ 10V	4.6	
I_{DM}	Pulsed Drain Current	24	
P_D @T_A = 25°C	Maximum Power Dissipation	1.25	W
P_D @T_A = 70°C	Maximum Power Dissipation	0.80	
	Linear Derating Factor	0.01	W/°C
V_{GS}	Gate-to-Source Voltage	± 20	V
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to + 150	°C

Thermal Resistance

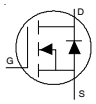
Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-Ambient ③	—	100	°C/W
$R_{\theta JA}$	Junction-to-Ambient (t<10s) ④	—	99	

Electric Characteristics @ T_J = 25°C (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	25	—	—	V	V_{GS} = 0V, I_D = 250μA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	0.02	—	V/°C	Reference to 25°C, I_D = 1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	20	24	mΩ	V_{GS} = 10V, I_D = 5.8A ②
		—	32	41		V_{GS} = 4.5V, I_D = 4.6A ②
$V_{GS(th)}$	Gate Threshold Voltage	1.35	1.7	2.35	V	V_{DS} = V_{GS}, I_D = 10μA
I_{DSS}	Drain-to-Source Leakage Current	—	—	1.0	μA	V_{DS} = 20V, V_{GS} = 0V
		—	—	150		V_{DS} = 20V, V_{GS} = 0V, T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	—	—	100	nA	V_{GS} = 20V
	Gate-to-Source Reverse Leakage	—	—	-100		V_{GS} = -20V
R_G	Internal Gate Resistance	—	1.6	—	Ω	
gfs	Forward Transconductance	10	—	—	S	V_{DS} = 10V, I_D = 5.8A
Q_g	Total Gate Charge	—	5.4	—	nC	I_D = 5.8A
Q_{gs}	Gate-to-Source Charge	—	1.0	—		V_{DS} =13V
Q_{gd}	Gate-to-Drain ("Miller") Charge	—	0.81	—		V_{GS} = 10V ②
$t_{d(on)}$	Turn-On Delay Time	—	2.7	—	ns	V_{DD} =13V②
t_r	Rise Time	—	2.1	—		I_D = 1.0A
$t_{d(off)}$	Turn-Off Delay Time	—	9.0	—		R_G = 6.8Ω
t_f	Fall Time	—	2.9	—		V_{GS} = 10V
C_{iss}	Input Capacitance	—	430	—	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	—	110	—		V_{DS} = 10V
C_{rss}	Reverse Transfer Capacitance	—	49	—		f = 1.0MHz

Source - Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	1.25	A	MOSFET symbol showing the integral reverse p-n junction diode.
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	24		
V_{SD}	Diode Forward Voltage	—	—	1.2	V	T_J = 25°C, I_S = 5.8A, V_{GS} = 0V ②
t_{rr}	Reverse Recovery Time	—	11	17	ns	T_J = 25°C, V_R = 20V, I_F=5.8A
Q_{rr}	Reverse Recovery Charge	—	4.2	6.3	nC	di/dt = 100A/μs ②



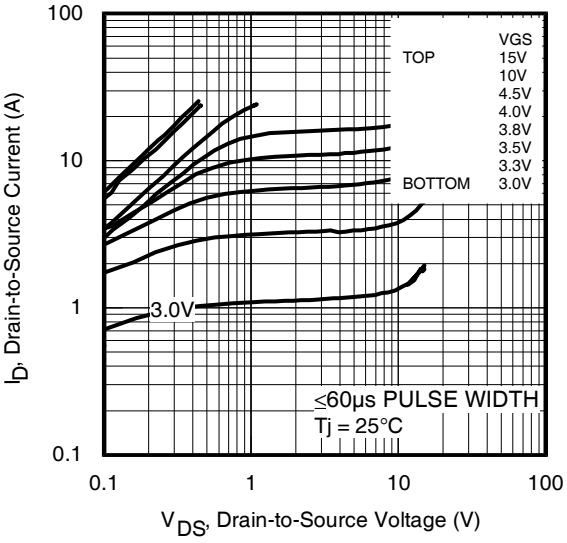


Fig 1. Typical Output Characteristics

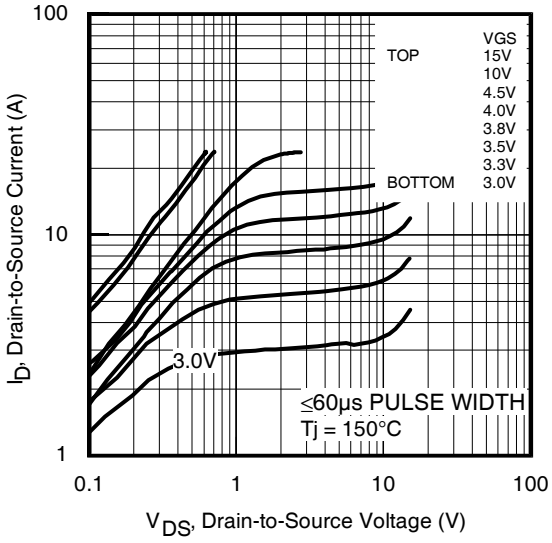


Fig 2. Typical Output Characteristics

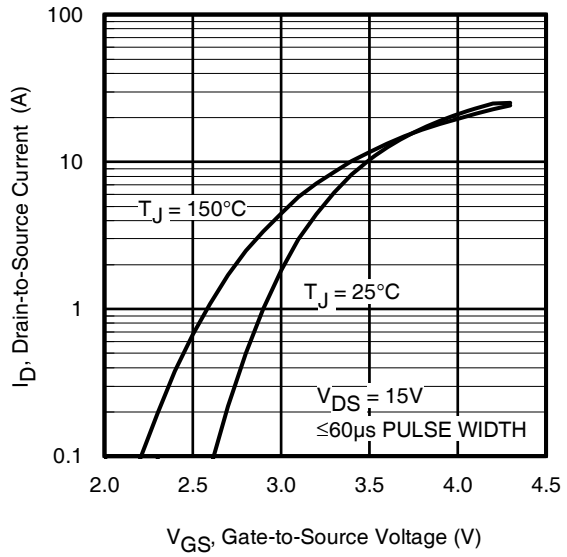


Fig 3. Typical Transfer Characteristics

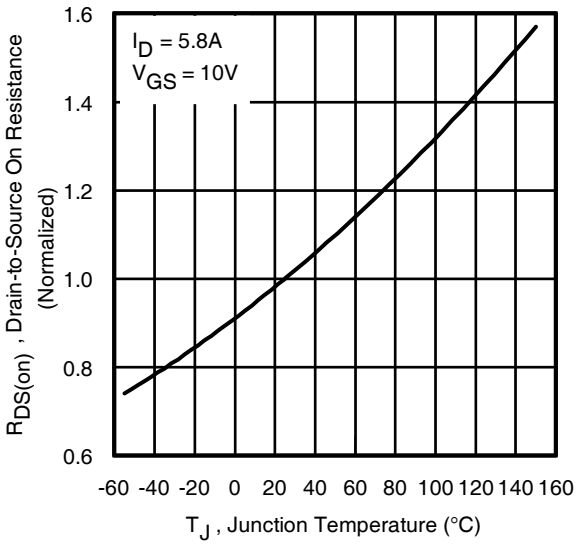


Fig 4. Normalized On-Resistance vs. Temperature

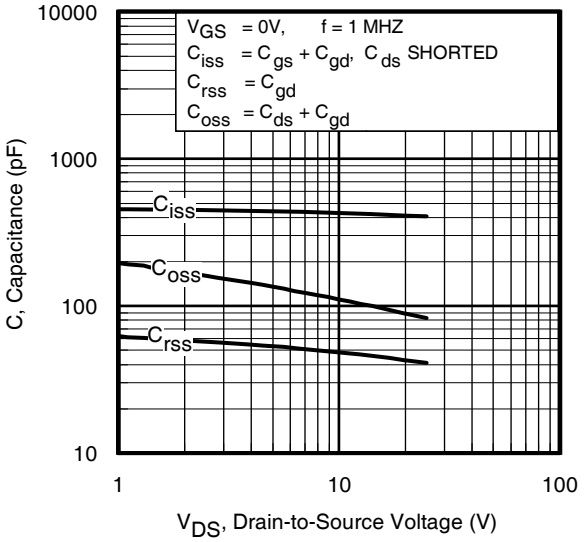


Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

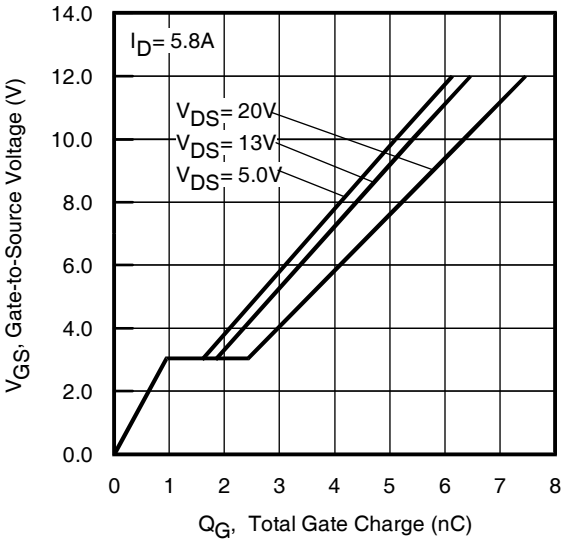


Fig 6. Typical Gate Charge vs. Gate-to-Source Voltage

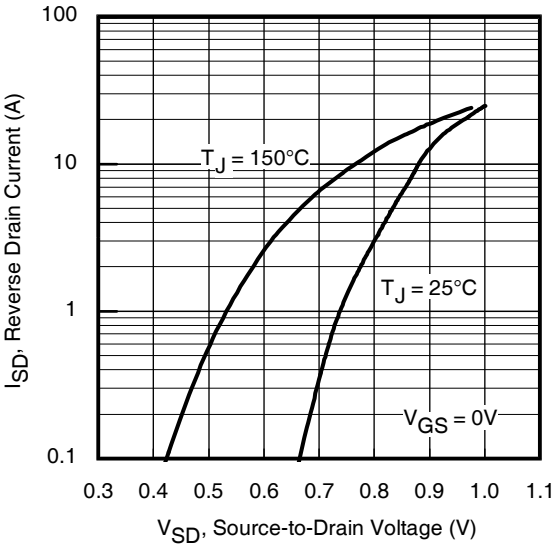


Fig 7. Typical Source-Drain Diode Forward Voltage

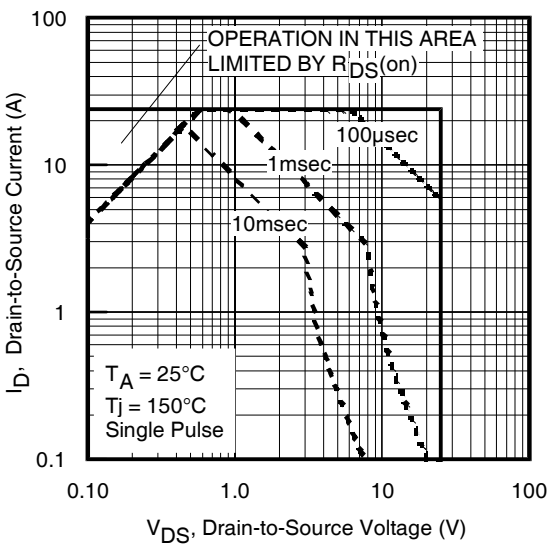


Fig 8. Maximum Safe Operating Area

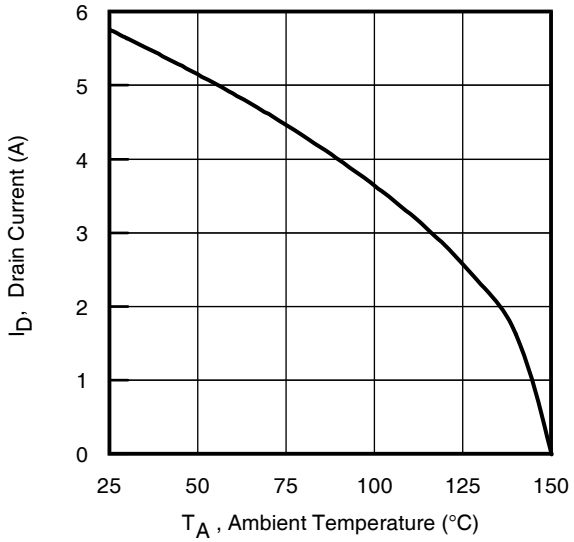


Fig 9. Maximum Drain Current vs. Ambient Temperature

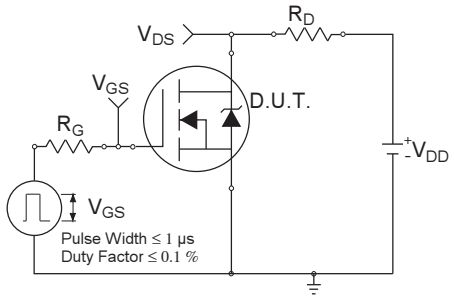


Fig 10a. Switching Time Test Circuit

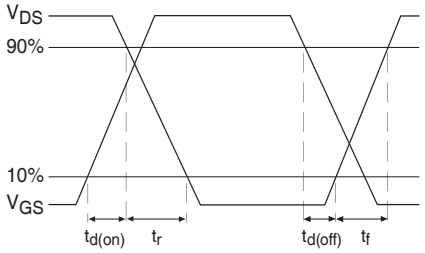


Fig 10b. Switching Time Waveforms

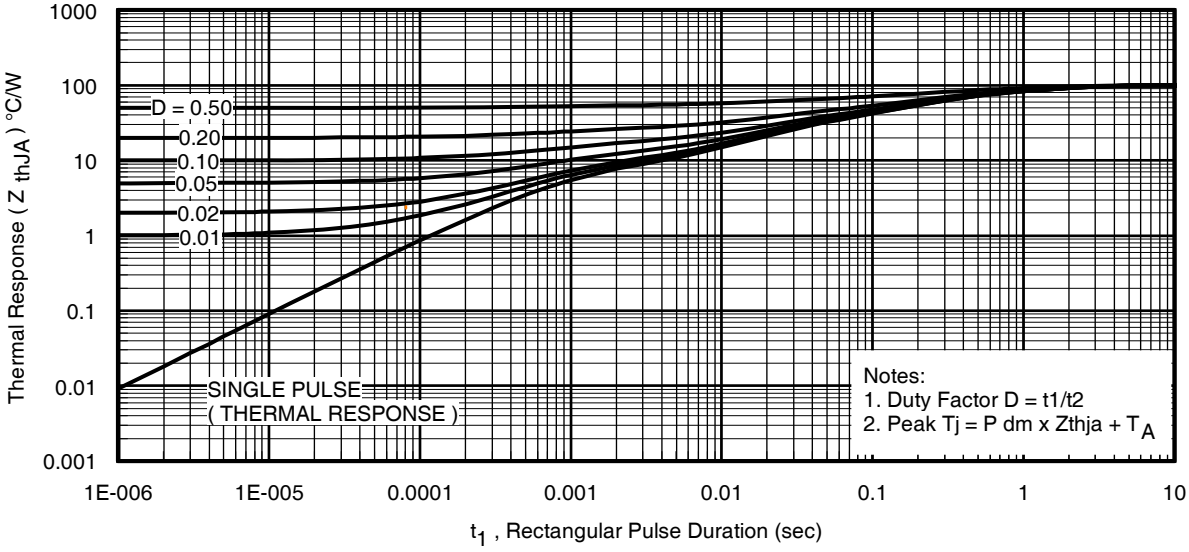


Fig 11. Typical Effective Transient Thermal Impedance, Junction-to-Ambient

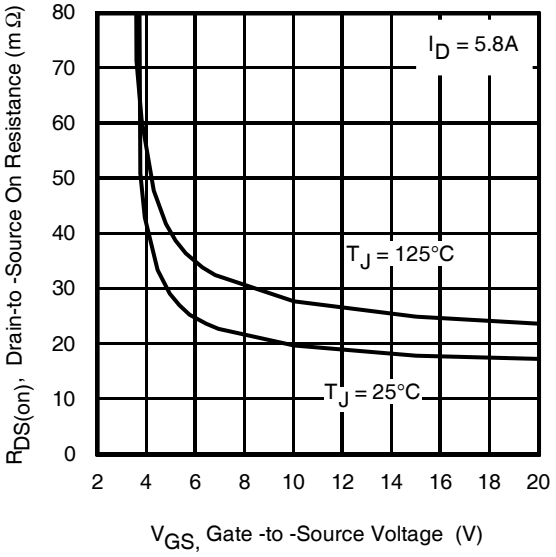


Fig 12. Typical On-Resistance vs. Gate Voltage

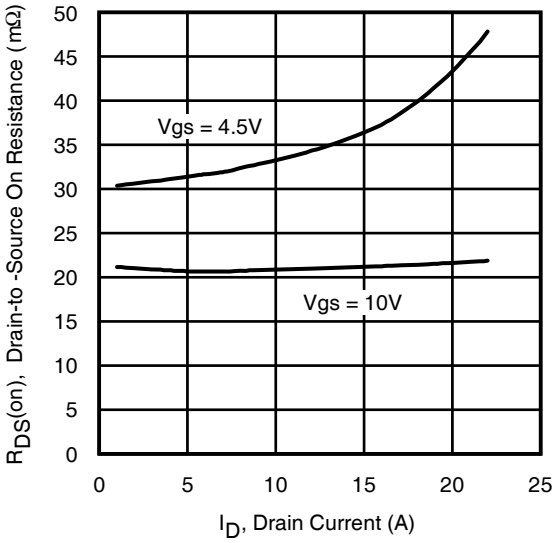


Fig 13. Typical On-Resistance vs. Drain Current

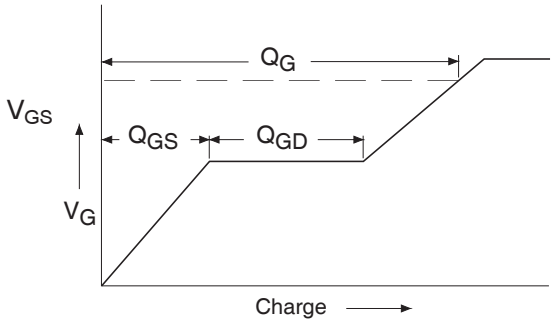


Fig 14a. Basic Gate Charge Waveform

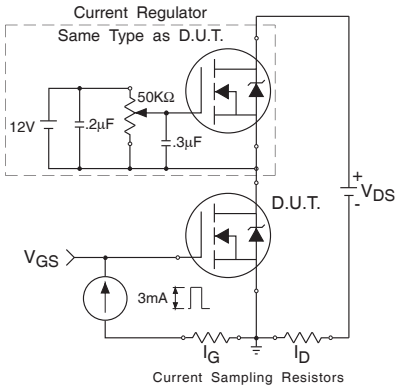


Fig 14b. Gate Charge Test Circuit

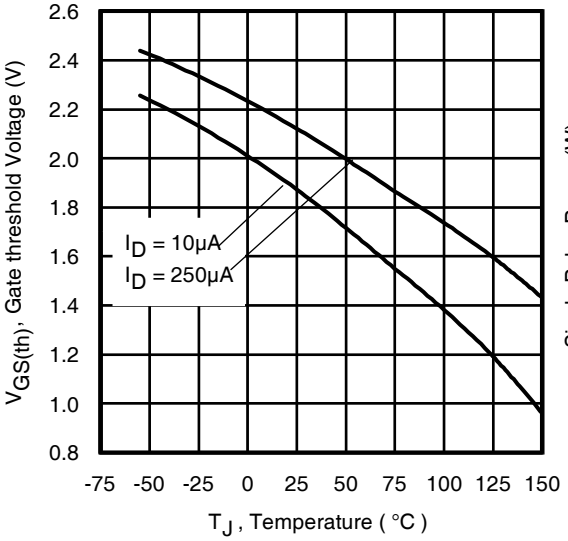


Fig 15. Typical Threshold Voltage vs. Junction Temperature

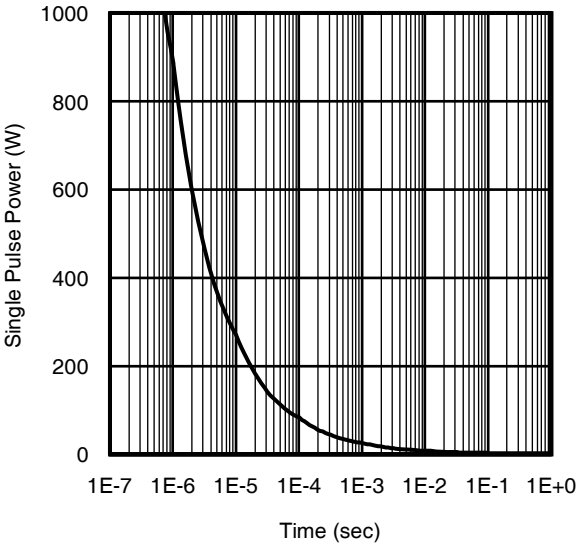


Fig 16. Typical Power vs. Time