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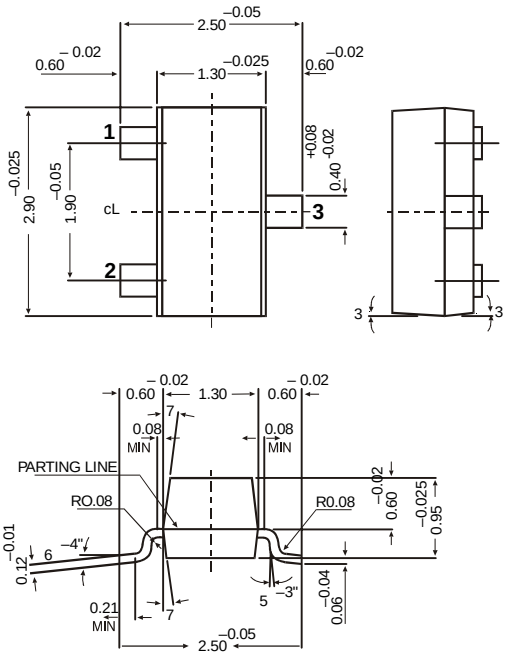
V_{DSS}	60	V
V_{GS}	±16	V
$R_{DS(on)}$ max (@ V_{GS} = 10V)	92	mΩ
$R_{DS(on)}$ max (@ V_{GS} = 4.5V)	116	mΩ

FEATURES

- Low $R_{DS(on)}$ (≤ 92mΩ)
- Industry-standard pinout
- Compatible with existing Surface Mount Techniques
- RoHS compliant containing no lead, no bromide and no halogen
- MSL1, Industrial qualification

SOT-23 Formed SMD Package



Benefits

- Lower switching losses
- Multi-vendor compatibility
- Easier manufacturing
- Environmentally friendly
- Increased reliability

Application(s)

- Load/ System Switch

Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V_{DS}	Drain-to-Source Voltage	60	V
I_D @ T_A = 25°C	Continuous Drain Current, V_{GS} @ 10V	2.7	A
I_D @ T_A = 70°C	Continuous Drain Current, V_{GS} @ 10V	2.1	
I_{DM}	Pulsed Drain Current	11	
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	mW/°C
V_{GS}	Gate-to-Source Voltage	± 16	
T_J T_{STG}	Operating 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)	——	99	

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

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	60	——	——	V	V_{GS} = 0V, I_D = 250μA
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	——	0.06	——	V/°C	Reference to 25°C, I_D = 1mA
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	——	98	116	mΩ	V_{GS} = 4.5V, I_D = 2.2A
		——	78	92		V_{GS} = 10V, I_D = 2.7A
$V_{GS(th)}$	Gate Threshold Voltage	1.0	——	2.5	V	V_{DS} = V_{GS}, I_D = 25μA
I_{DSS}	Drain-to-Source Leakage Current	——	——	20	μA	V_{DS} = 60V, V_{GS} = 0V
		——	——	250		V_{DS} = 60V,V_{GS} = 0V,T_J = 125°C
I_{GSS}	Gate-to-Source Forward Leakage	——	——	100	nA	V_{GS} = 16V
	Gate-to-Source Reverse Leakage	——	——	-100		V_{GS} = -16V
R_G	Internal Gate Resistance	——	1.6	——	Ω	
gfs	Forward Trans conductance	7.6	——	——	S	V_{DS} = 25V, I_D = 2.7A
Q_g	Total Gate Charge	——	2.5	——	nC	I_D = 2.7A
Q_{gs}	Gate-to-Source Charge	——	0.7	——		V_{DS} = 30V
Q_{gd}	Gate-to-Drain ('Miller') Charge	——	1.3	——		V_{GS} = 4.5V ②
$t_{d(on)}$	Turn-On Delay Time	——	5.4	——	ns	V_{DD} = 30V②
t_r	Rise Time	——	6.3	——		I_D = 1.0A
$t_{d(off)}$	Turn-Off Delay Time	——	6.8	——		R_G = 6.8Ω
t_f	Fall Time	——	4.2	——		V_{GS} = 4.5V
C_{iss}	Input Capacitance	——	290	——	pF	V_{GS} = 0V
C_{oss}	Output Capacitance	——	37	——		V_{DS} = 25V
C_{rss}	Reverse Transfer Capacitance	——	21	——		f = 1.0MHz

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	——	——	1.6	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	——	——	11		
V_{SD}	Diode Forward Voltage	——	——	1.3	V	T_J = 25°C,I_S = 2.7A,V_{GS} = 0V ②
t_{rr}	Reverse Recovery Time	——	14	21	ns	T_J = 25°C ,V_R = 30V, I_F = 1.6A
Q_{rr}	Reverse Recovery Charge	——	13	20	nC	di/dt = 100A/μs ②

Notes:

① Repetitive rating; pulse width limited by max. junction temperature.

② Pulse width ≤ 400μs; duty cycle ≤ 2%.

③ Surface mounted on 1 in square Cu board

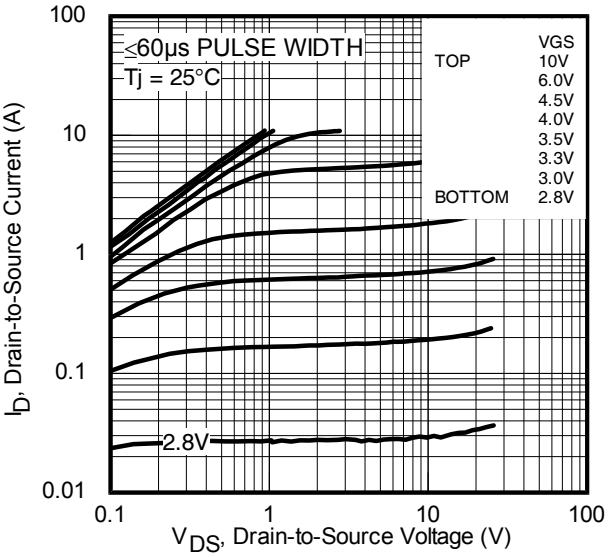

Fig. 1 Typical Output Characteristics

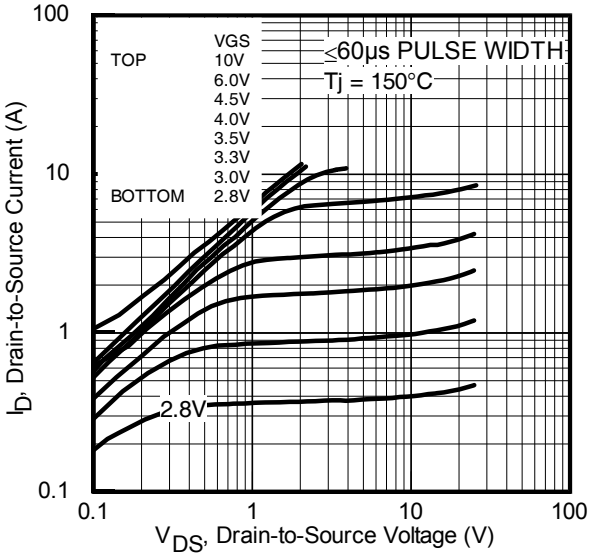

Fig. 2 Typical Output Characteristics

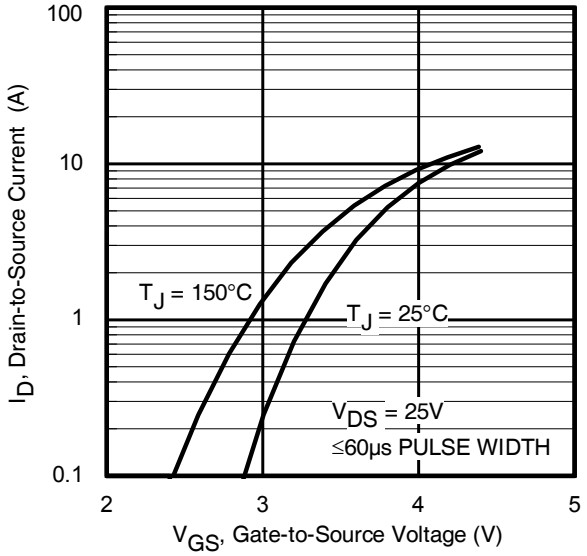

Fig. 3 Typical Transfer Characteristics

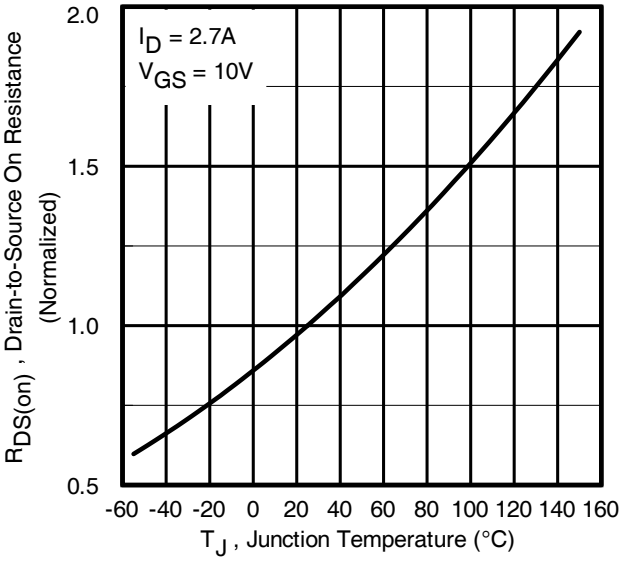

Fig. 4 Normalized On-Resistance vs. Temperature

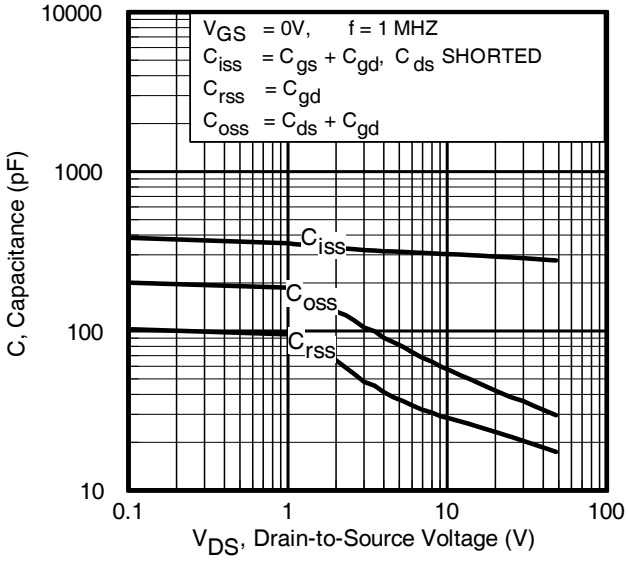

Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

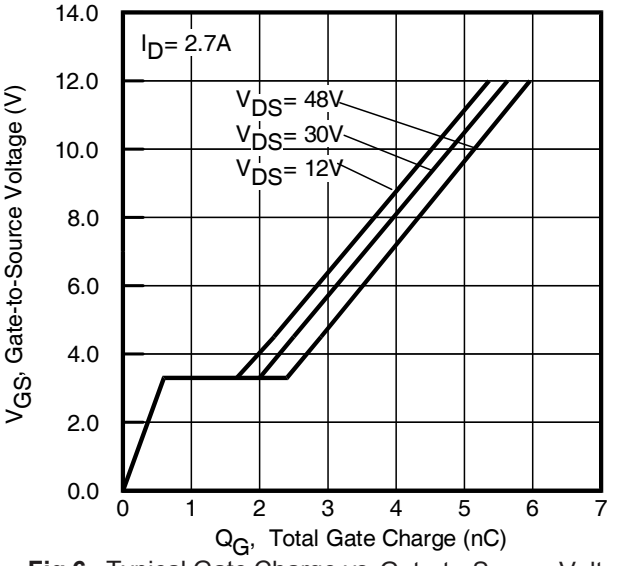

Fig 6. Typical Gate Charge vs. Gate-to-Source Voltage

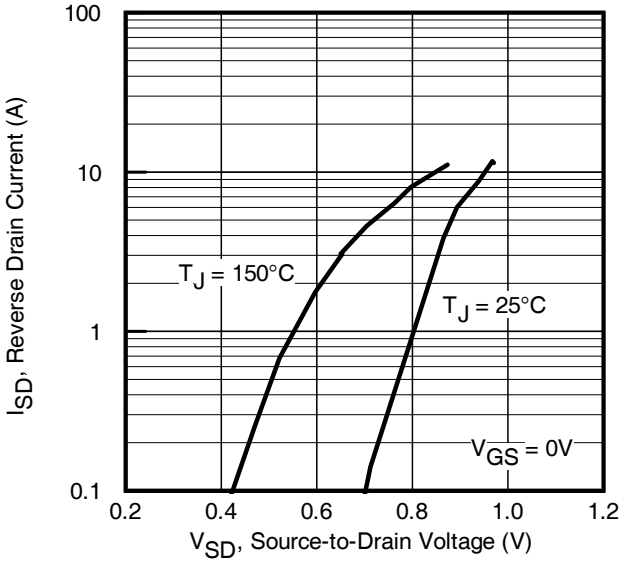

Fig. 7 Typical Source-to-Drain Diode Forward Voltage

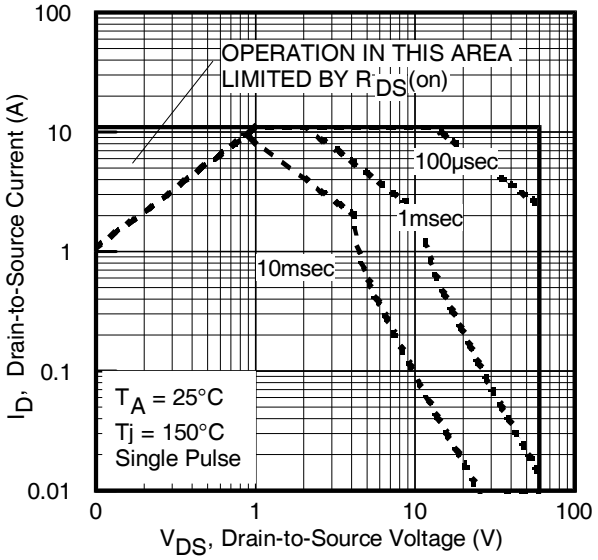

Fig 8. Maximum Safe Operating Area

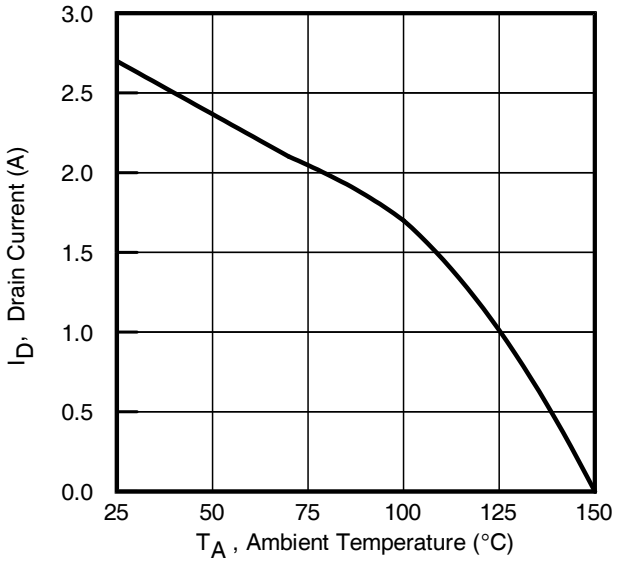

Fig 9. Maximum Drain Current vs. Case Temperature

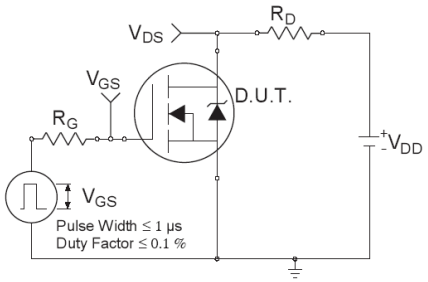

Fig 10a. Switching Time Test Circuit

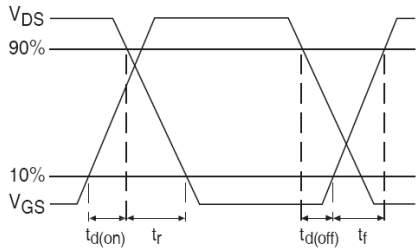

Fig 10b. Switching Time Waveforms

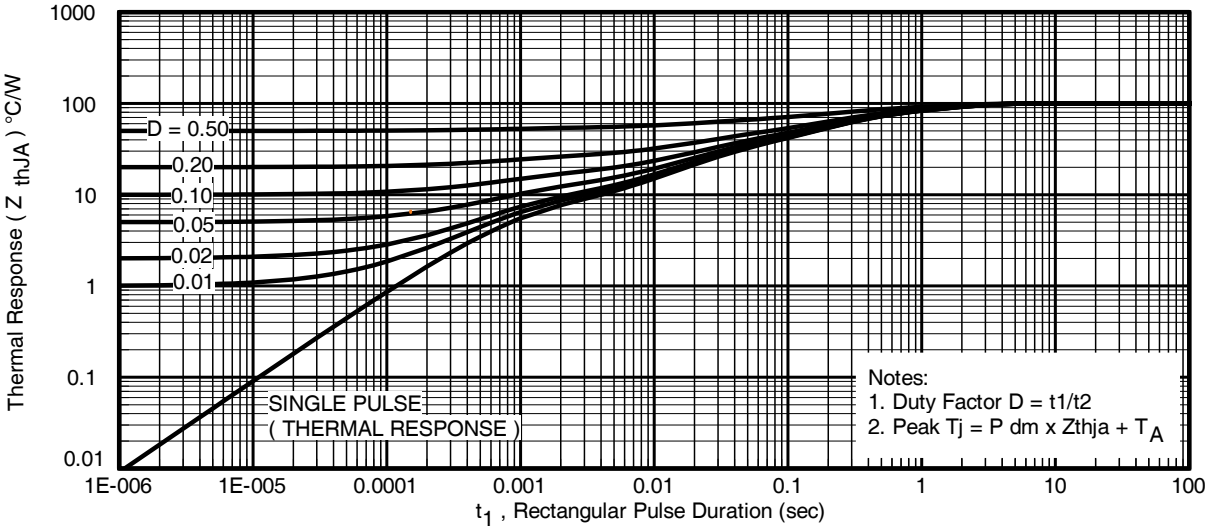

Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

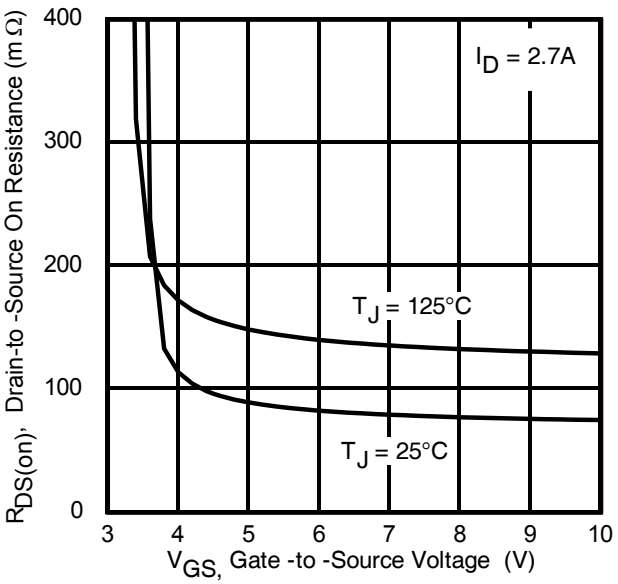

Fig 12. Typical On-Resistance Vs. Gate Voltage

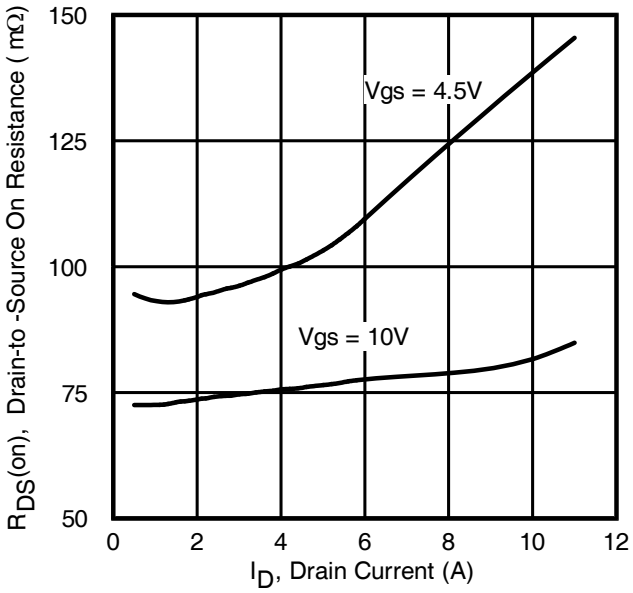

Fig 13. Typical On-Resistance Vs. Drain Current

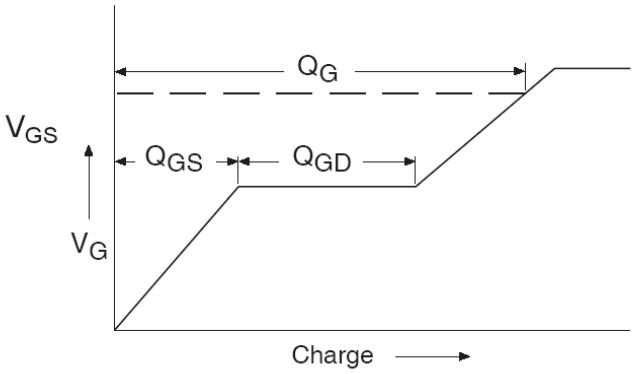

Fig 14a. Basic Gate Charge Waveform

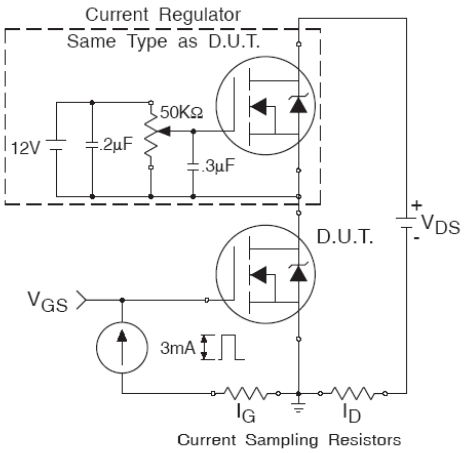

Fig 14b. Gate Charge Test Circuit

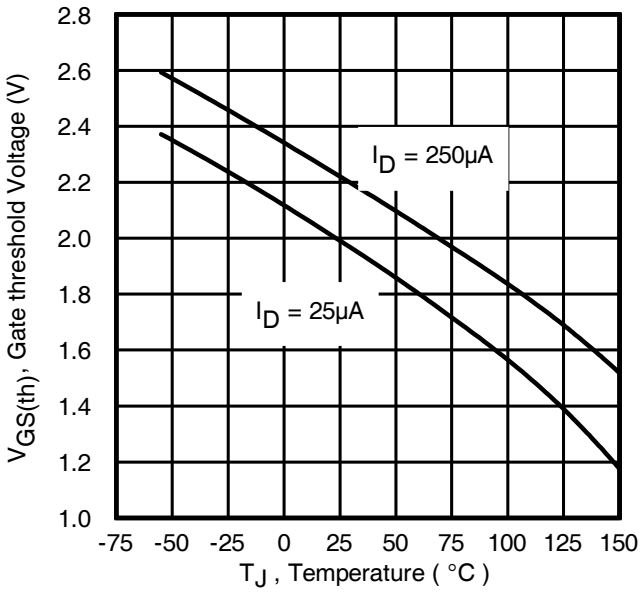

Fig 15. Typical Threshold Voltage Vs. Junction Temperature

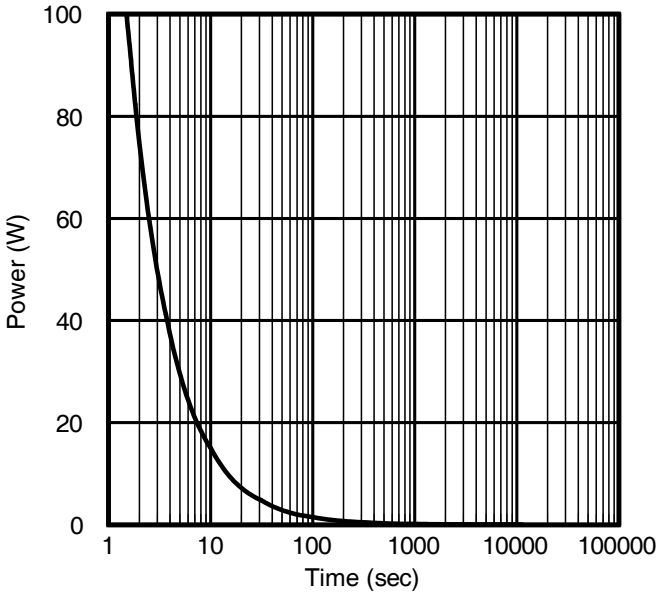

Fig 16. Typical Power Vs. Time