N-Channel Enhancement Mode Field Effect Transistor

Product Summary

- V_{DS} 40V
- I_D 2.5A
- $R_{DS(ON)}$(at V_{GS}=10V) 100mohm
- $R_{DS(ON)}$(at V_{GS}=6V) 140mohm
- ESD protected up to 2.0KV (HBM)

General Description

- Voltage controlled small signal switch
- Low input Capacitance
- Fast Switching Speed
- Low Input / Output Leakage
- Moisture Sensitivity Level 1
- Part no. with suffix “Q” means AEC-Q101 qualified

Applications

- Battery operated systems
- Solid-state relays
- Direct logic-level interface TTL/CMOS
- 12V Automotive systems

■ Absolute Maximum Ratings (T_A=25 unless otherwise noted)

Parameter	Symbol	Limit	
Drain Current	I_D	2.5	A
Pulsed Drain Current	I_{DM}	12	A
Total Power Dissipation @ T_A= 25	P_D	1.1	W
Thermal Resistance Junction-to-Ambient @ Steady State [B]	$R_{\theta JA}$	110	/ W
Junction and Storage Temperature Range	T_J , T_{STG}	-55 +150	

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER B		DELIVERY MODE

■ Electrical Characteristics (T_J=25 unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250μA	40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V,V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ± 20V, V_{DS}=0V			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V				

■ Typical Performance Characteristics

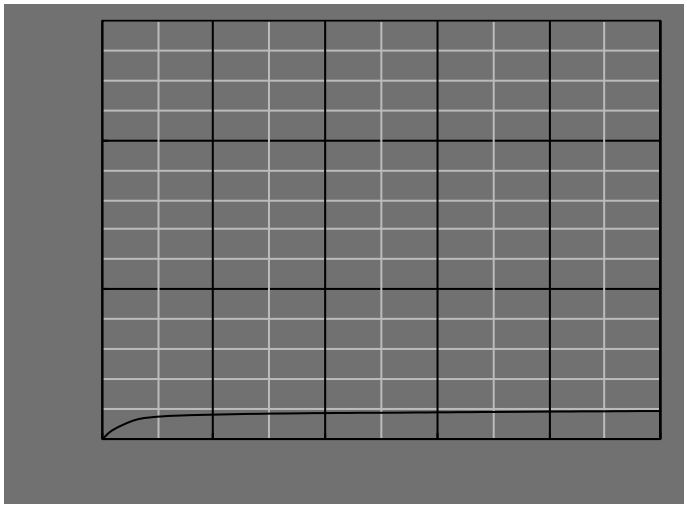


Figure1. Output Characteristics

Figure2. Transfer Characteristics

Figure3. Capacitance Characteristics

Figure4. Gate Charge

Figure5. On-Resistance vs Gate to Source Voltage

Figure6. Normalized On-Resistance

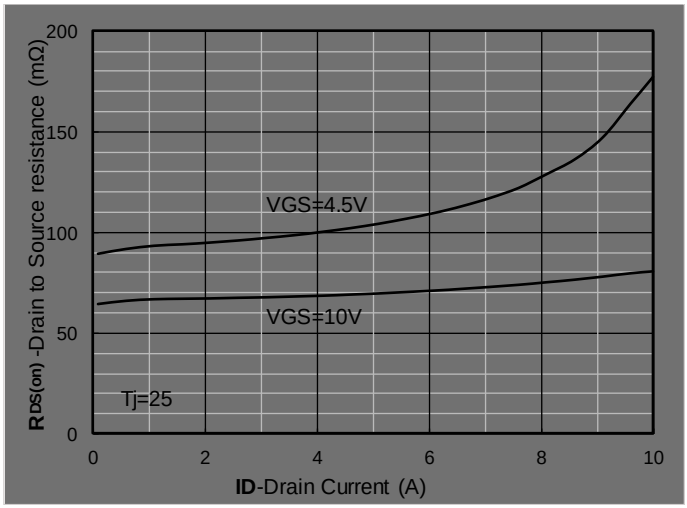


Figure 7. $R_{DS(on)}$ VS Drain Current

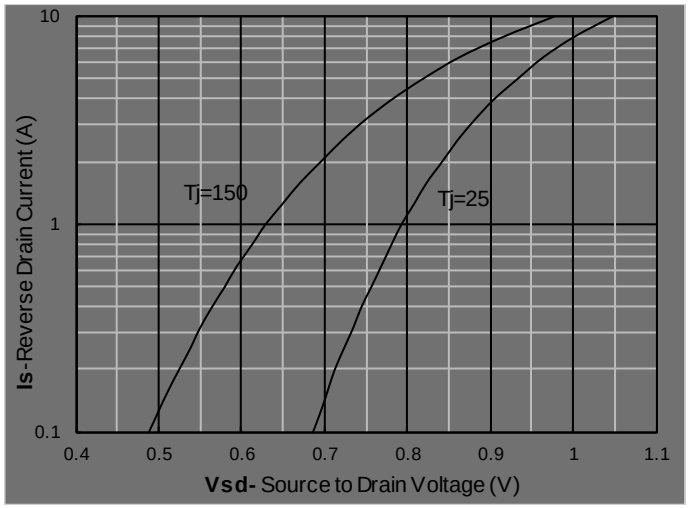


Figure 8. Forward characteristics of reverse diode

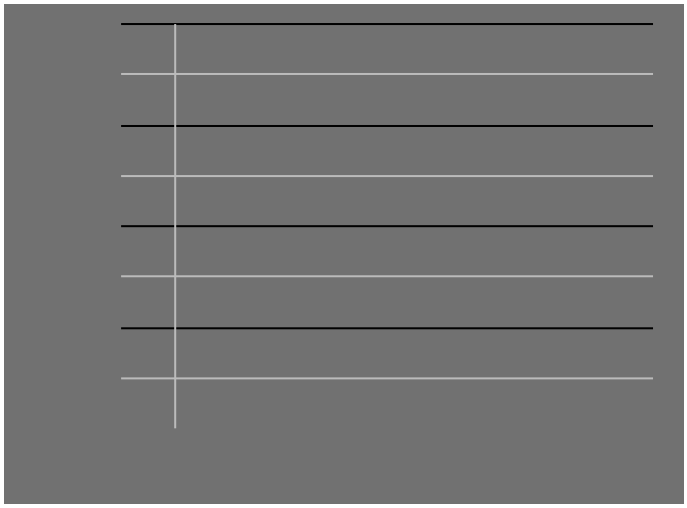


Figure 9. Normalized breakdown voltage

Figure 10. Normalized Threshold voltage

Figure 11. Current dissipation

Figure 12. Power dissipation

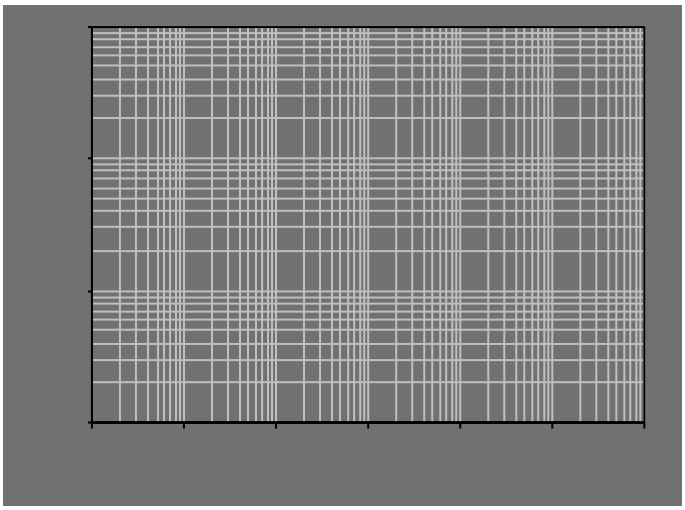
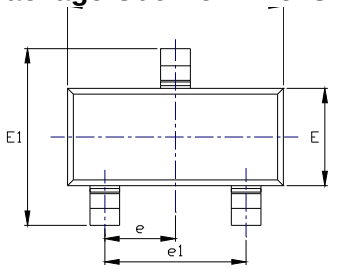


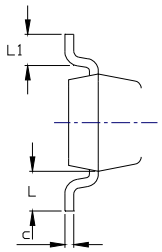
Figure 13. Maximum Transient Thermal Impedance

Figure 14. Safe Operation Area

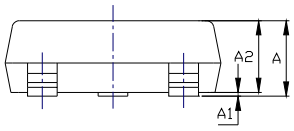
■ SOT-23 Package Outline Dimensions



TOP VIEW



SIDE VIEW



UNIT mm

SUGGESTED SOLDER PAD LAYOUT

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