Main Product Characteristics:

Features and Benefits:

Description:

Absolute Max Rating:

Symbol	Parameter	Max.	Units
I			

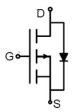
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-ambient (	—	63	/W

Electrical Characterizes @T_A=25 unless otherwise specified

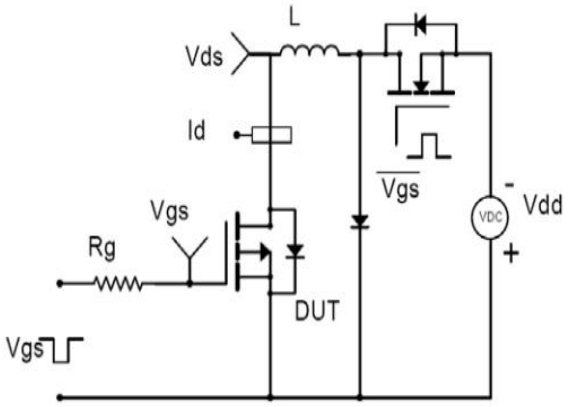
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	-20	—	—	V	V_{GS} = 0V, I_D = -250μA
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	15.6	21	mΩ	V_{GS}= -4.5V,I_D = -5A
		—	21.4	29		V_{GS}= -2.5V,I_D = -4A
$V_{GS(th)}$	Gate threshold voltage	-0.5	—	-1	V	V_{DS} = V_{GS}, I_D = -250μA
I_{DSS}	Drain-to-Source leakage current	—	—	-1	μA	V_{DS} = -20V,V_{GS} = 0V
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V_{GS} =12V
		—	—	-100		V_{GS} = -12V
C_{iss}	Input capacitance	—	1980	—	pF	V_{GS} = 0V
C_{oss}	Output capacitance	—	240	—		V_{DS} = -10V
C_{rss}	Reverse transfer capacitance	—	225	—		f = 1MHz
Q_g	Total gate charge	—	15	—	nC	I_D = -5A,
Q_{gs}	Gate-to-Source charge	—	2.5	—		V_{DS}= -10V,
Q_{gd}	Gate-to-Drain("Miller") charge	—	4.3	—		V_{GS} = -4.5V
$t_{d(on)}$	Turn-on delay time	—	9	—	ns	V_{GS}= -4.5V, V_{DS} = -10V, R_{GEN}=3Ω,R_L=2Ω
t_r	Rise time	—	28	—		
$t_{d(off)}$	Turn-Off delay time	—	24	—		
t_f	Fall time	—	7	—		

Source-Drain Ratings and Characteristics

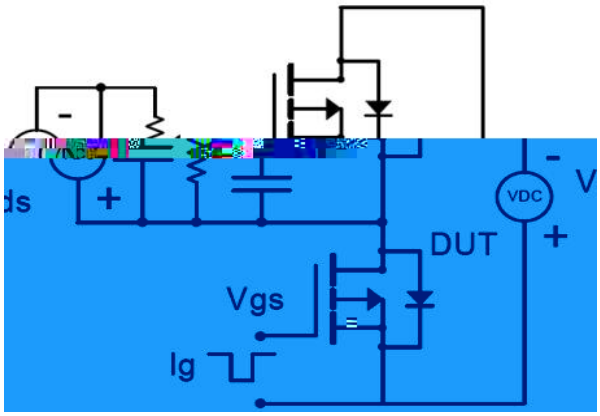
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	-9	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode)	—	—	-36	A	
V_{SD}	Diode Forward Voltage	—	—	-1.2	V	I_S=-10A, V_{GS}=0V

Test Circuits and Waveforms

EAS Test Circuit:

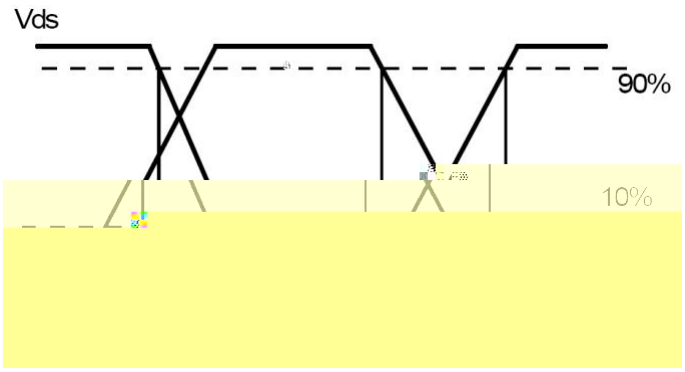


Gate Charge Test Circuit:



Switching Time Test Circuit:

Switching Waveforms:



Notes:

Calculated continuous current based on maximum allowable junction temperature.
Repetitive rating; pulse width limited by max. junction temperature.
The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.
The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C

Typical Electrical and Thermal Characteristics

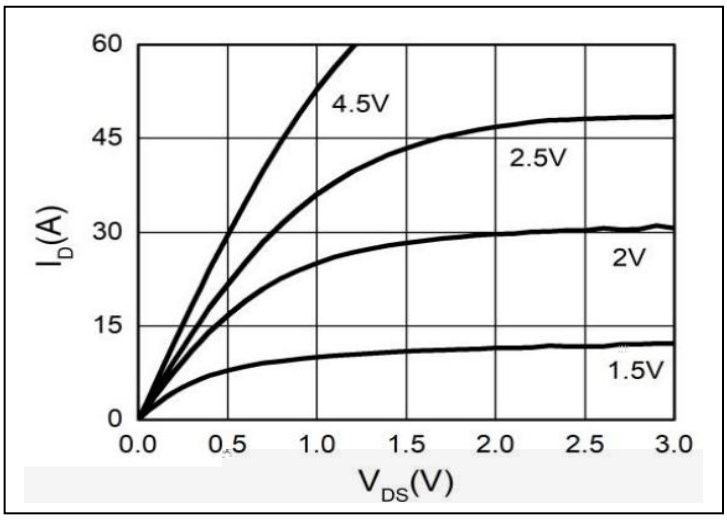


Figure 1. Typical Output Characteristics

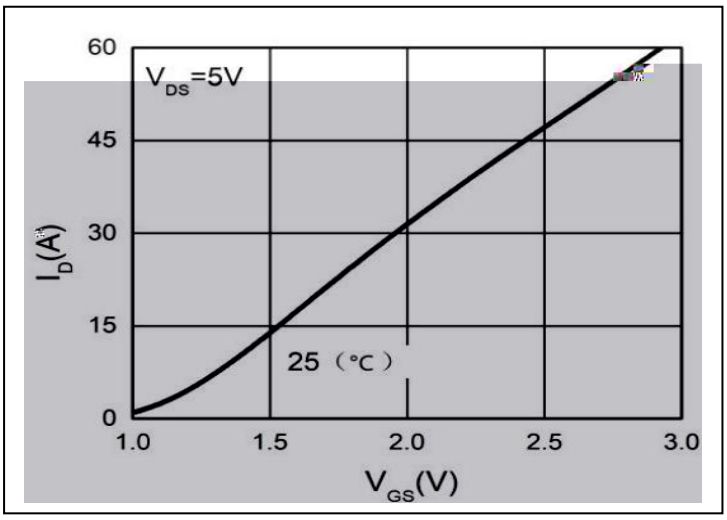


Figure 2. Transfer Characteristics

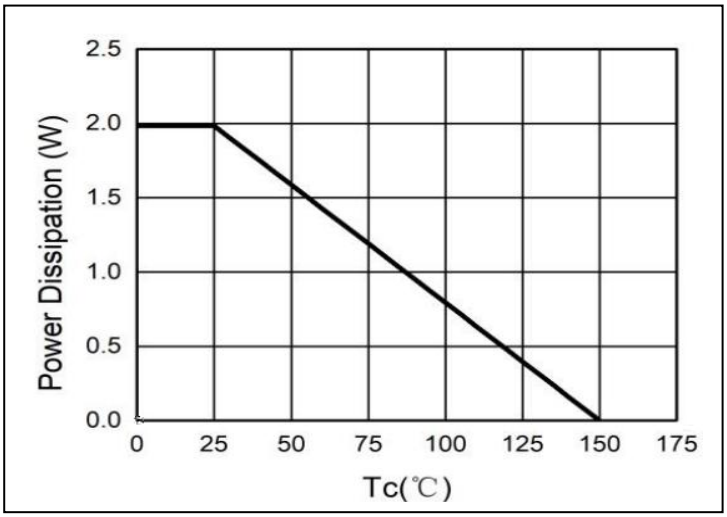


Figure 3. Power Dissipation

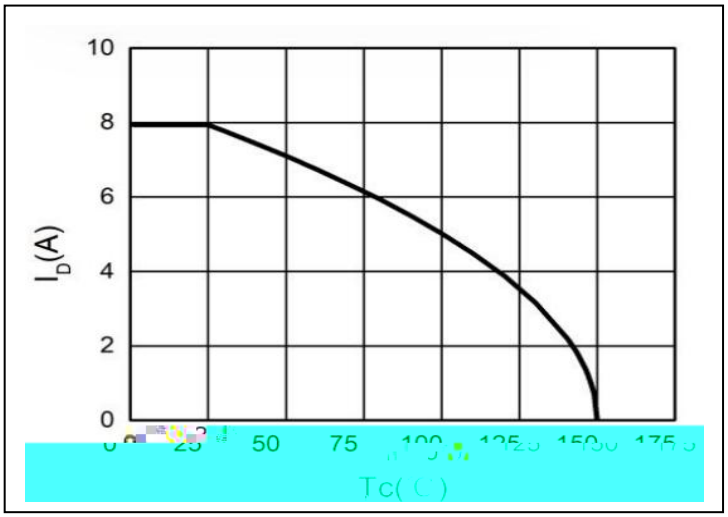


Figure 4. Drain Current

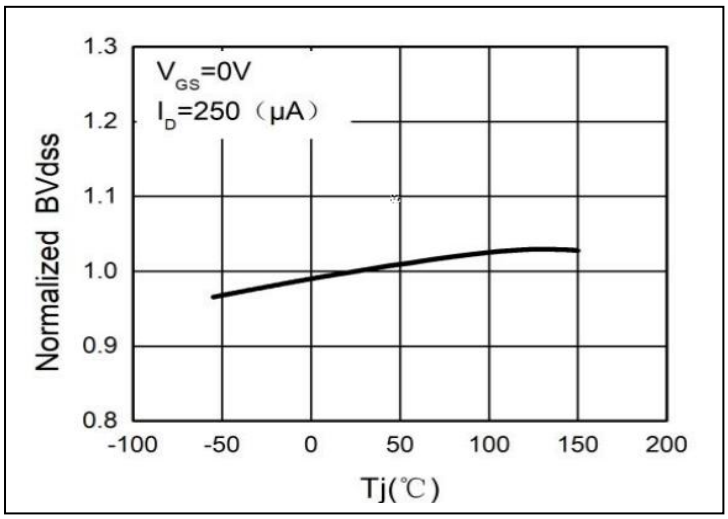


Figure 5. BV_{DSS} vs Junction Temperature

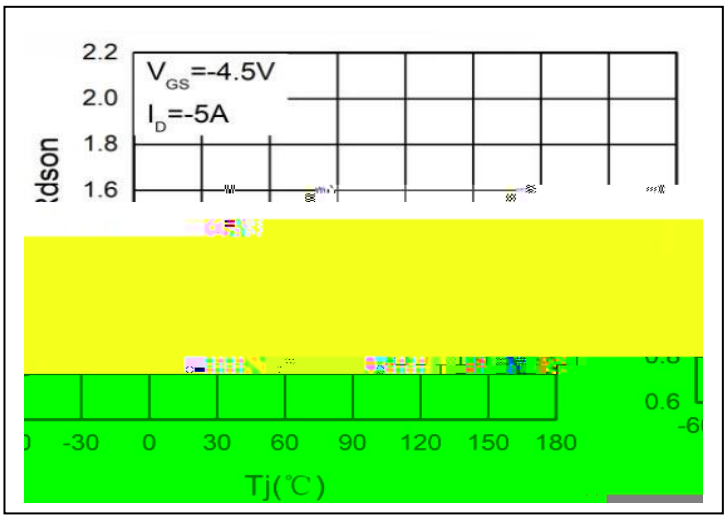


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

Typical Electrical and Thermal Characteristics

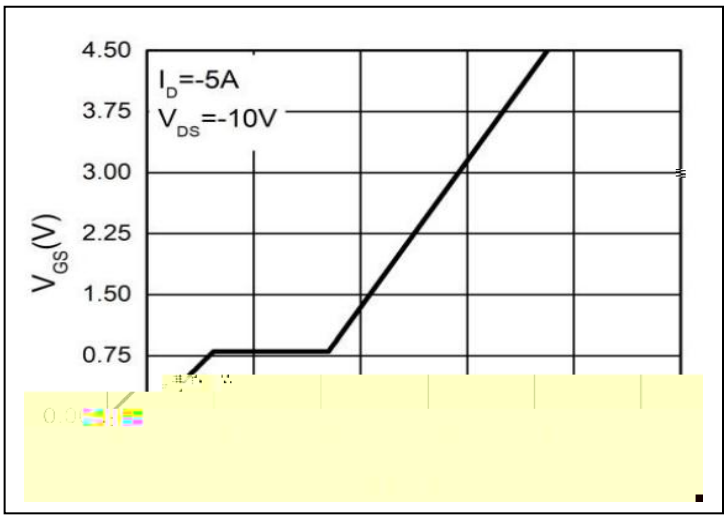


Figure 7. Gate Charge

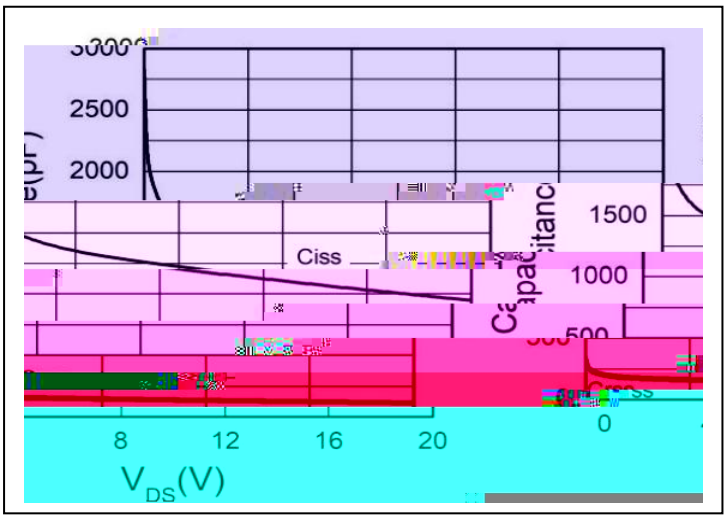


Figure 8. Capacitance

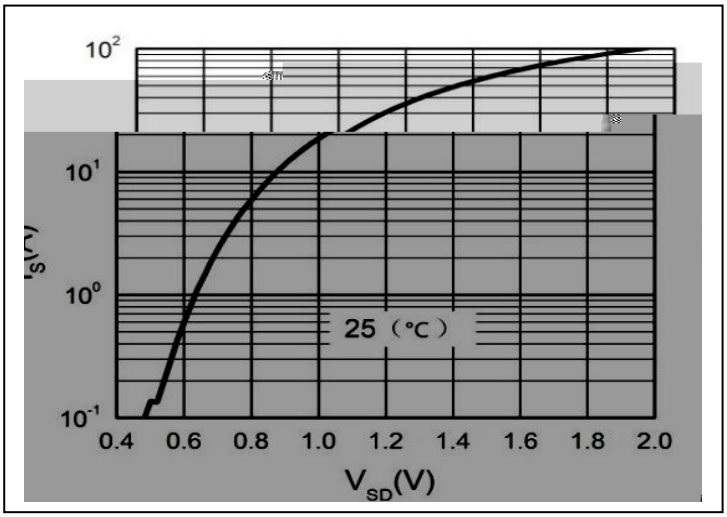


Figure 9. Body-Diode Characteristics

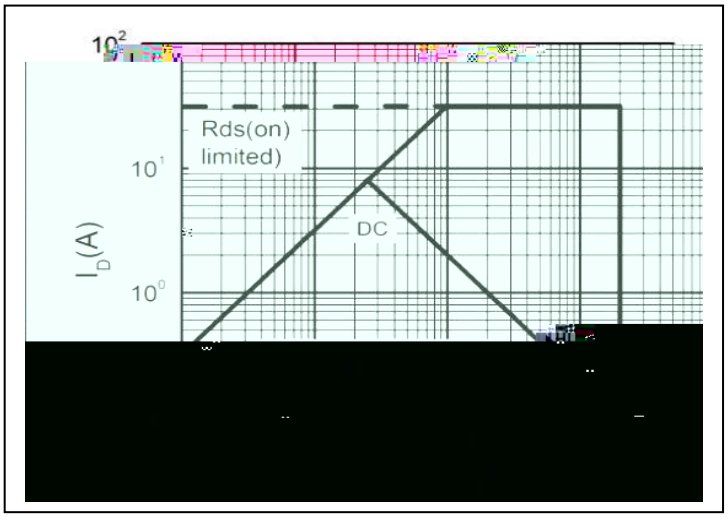
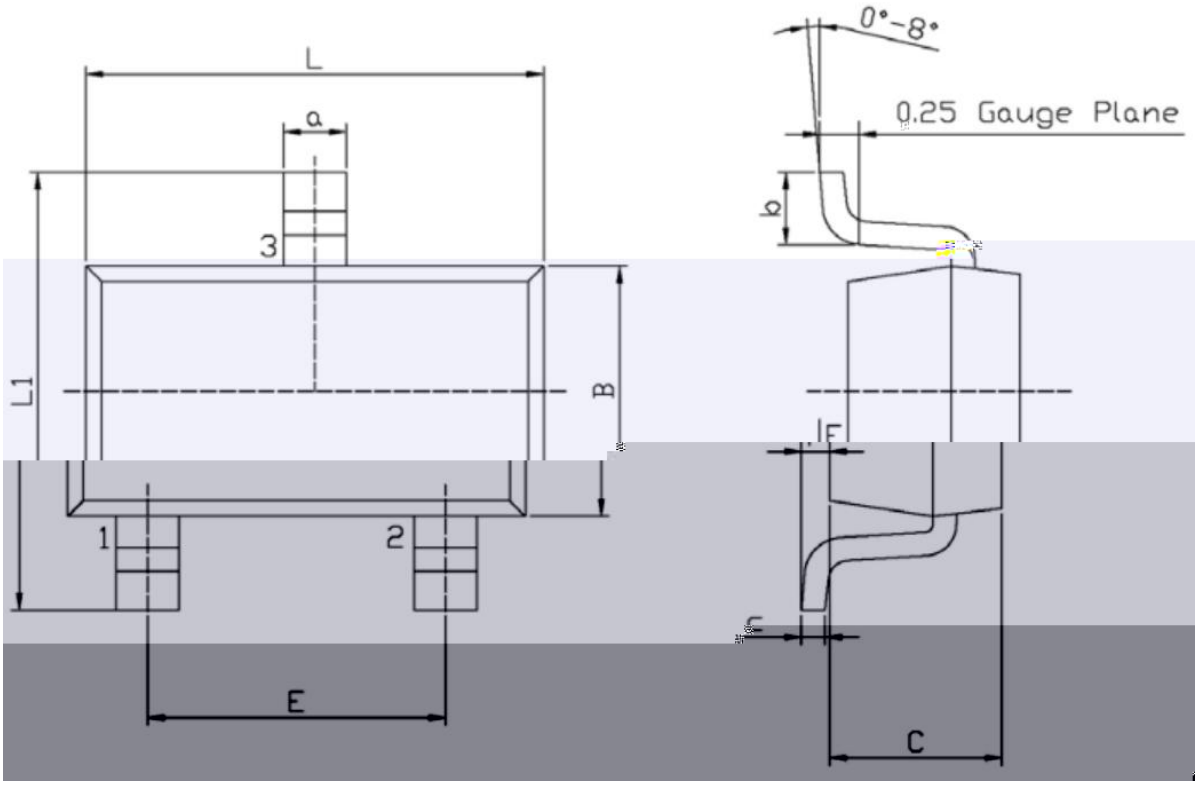


Figure 10. Maximum Safe Operating Area

Mechanical Data



Unit: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
		2.00			

ATTENTION:

- Any and all Silikron products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your Silikron representative nearest