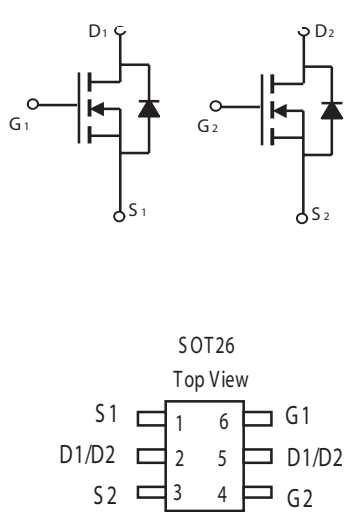


PRODUCT SUMMARY		
V_{DSS}	$R_{DS(ON)}$ @ 4.0V (typ)	I_D
20V	21m Ω	4A

FEATURES

- Super high dense cell design for low $R_{DS(ON)}$.
- Rugged and reliable.
- Surface Mount Package.



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current-Continuous ^a @ $T_J=25^\circ\text{C}$	I_D	4	A
-Pulsed ^b	I_{DM}	25	A
Drain-Source Diode Forward Current ^a	I_S	1.25	A
Maximum Power Dissipation ^a	PD	1.25	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient ^a	R θ_{JA}	100	$^\circ\text{C/W}$
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ELECTRICAL CHARACTERISTICS (T_A=25 °C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 19.5V, V _{GS} = 0V			1	μA
Gate-Body Leakage	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			± 0.1	μA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.45		1.2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 4.0V, I _D = 4.5A		21	25	m ohm
		V _{GS} = 2.5V, I _D = 3.5A			37.5	m ohm
Forward Transconductance	g _{FS}	V _{DS} = 5.0V, I _D = 4A		10		S
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C _{ISS}	V _{DS} = 8V, V _{GS} = 0V f = 1.0MHz		608		pF
Output Capacitance	C _{OSS}			115		pF
Reverse Transfer Capacitance	C _{RSS}			86		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 10V, I _D = 1A, V _{GEN} = 4.5V, R _L = 10 ohm R _{GEN} = 10 ohm		10		ns
Rise Time	t _r			14		ns
Turn-Off Delay Time	t _{D(OFF)}			39		ns
Fall Time	t _f			20		ns
Total Gate Charge	Q _g	V _{DS} = 10V, I _D = 4A, V _{GS} = 4.5V		11		nC
		V _{DS} = 10V, I _D = 5A, V _{GS} = 2.5V				nC
Gate-Source Charge	Q _{gs}	V _{DS} = 10V, I _D = 5 A		2.3		nC
Gate-Drain Charge	Q _{gd}	V _{GS} = 4.5V		2.5		nC

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS^b						
Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}, I_S=1.7\text{A}$			1.2	V

Notes

a. Reflow soldering internal actual temperature < 250 degrees, time in high temperature < 7 s.

b. Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 2%.

c. Guaranteed by design, not subject to production testing.

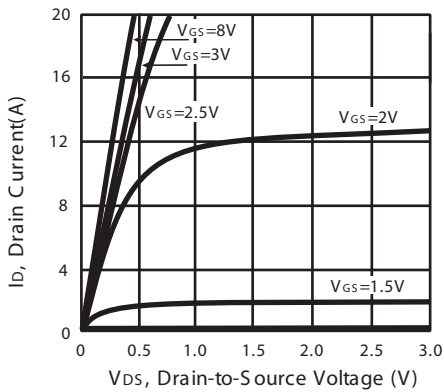


Figure 1. Output Characteristics

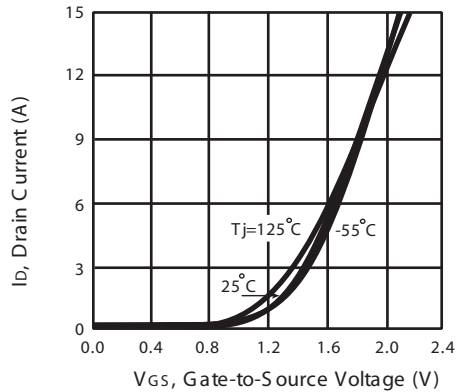


Figure 2. Transfer Characteristics

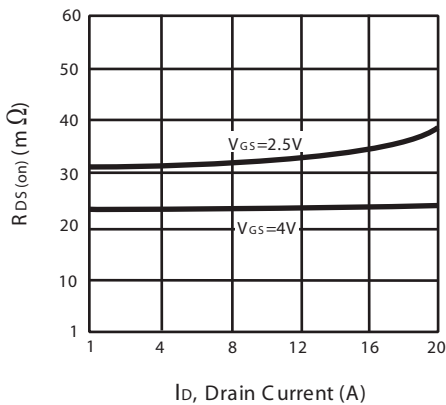


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

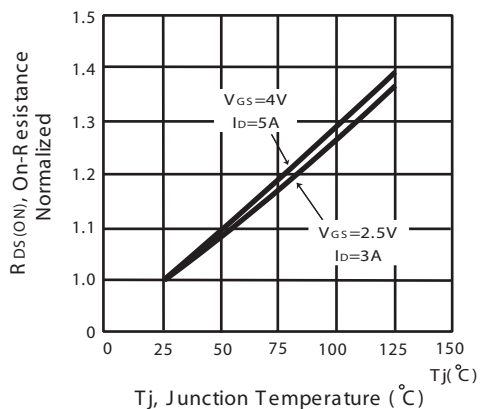


Figure 4. On-Resistance Variation with Drain Current and Temperature

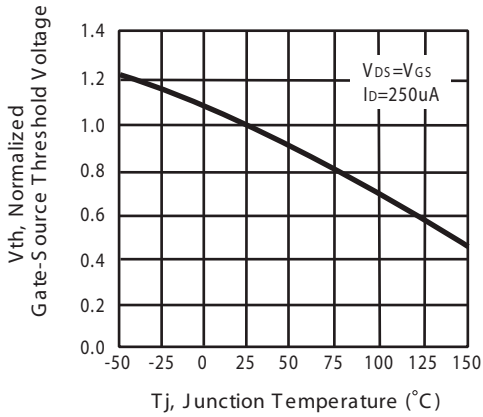


Figure 5. Gate Threshold Variation with Temperature

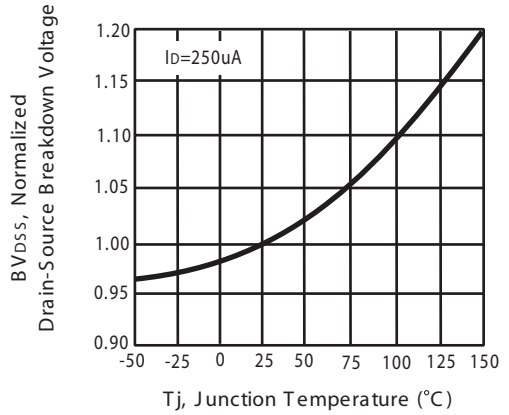


Figure 6. Breakdown Voltage Variation with Temperature

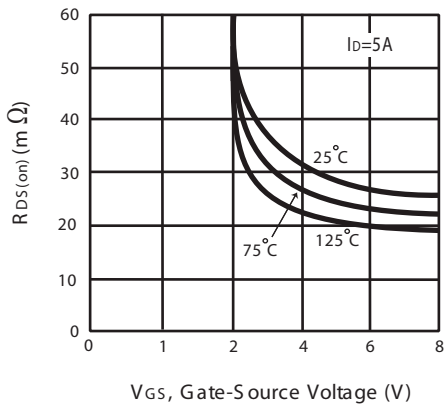


Figure 7. On-Resistance vs. Gate-Source Voltage

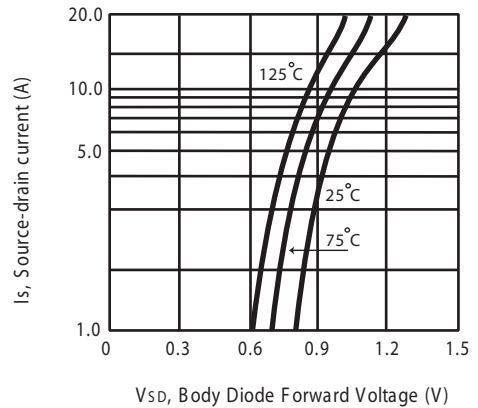


Figure 8. Body Diode Forward Voltage Variation with Source Current

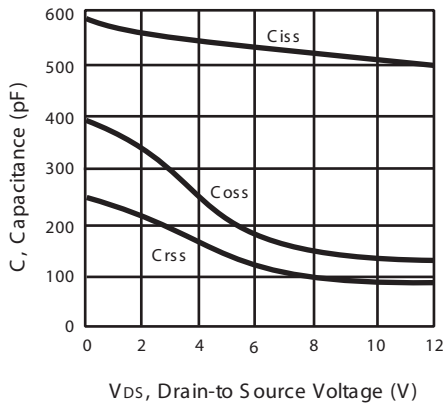


Figure 9. Capacitance

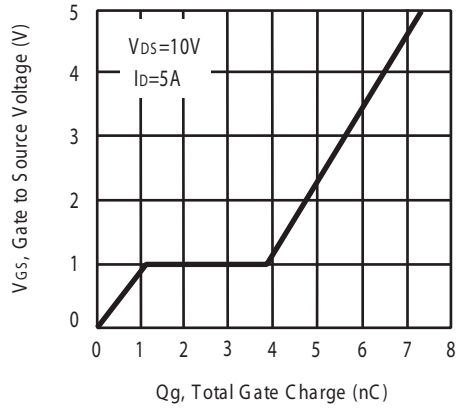


Figure 10. Gate Charge

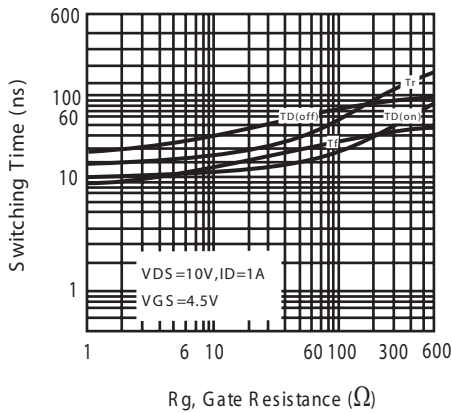
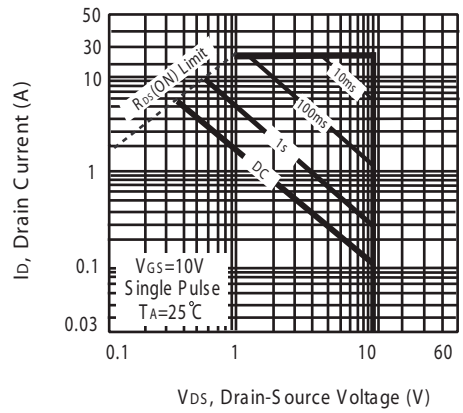


Figure 11. switching characteristics



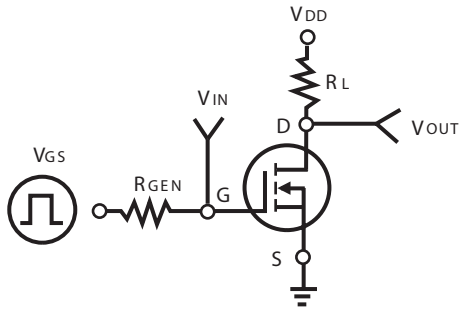


Figure 11. Switching Test Circuit

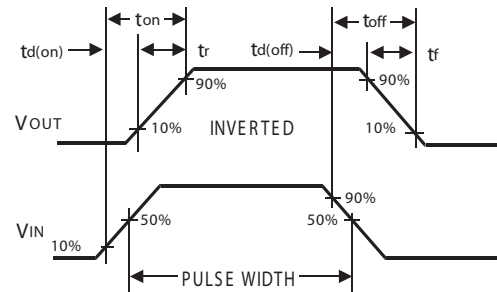


Figure 12. S switching Waveforms

