

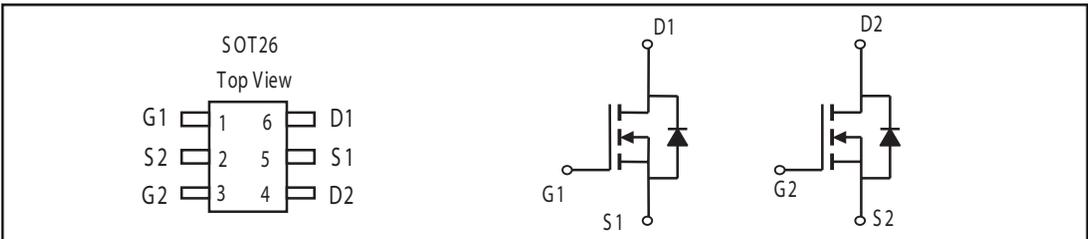


Dual N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(ON)} (mΩ) Max
30V	3A	65 @ V _{GS} = 10V
		90 @ V _{GS} = 4.5V

FEATURES

- Super high dense cell design for low R_{DS(ON)}.
- Rugged and reliable.
- SOT-26 package.



ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	± 20	V
Drain Current-Continuous @ T _J =25°C -Pulsed ^b	I _D	3	A
	I _{DM}	12	A
Drain-Source Diode Forward Current	I _S	1.25	A
Maximum Power Dissipation ^a	P _D	1.25	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to 150	°C

THERMAL CHARACTERISTICS

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

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3A$		45	65	m-ohm
		$V_{GS} = 4.5V, I_D = 2A$		70	90	m-ohm
On-State Drain Current	$I_{D(on)}$	$V_{DS} = 5V, V_{GS} = 4.5V$	10			A
Forward Transconductance	g_{FS}	$V_{DS} = 5V, I_D = 3A$		6		S
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V$ $f = 1.0MHz$		310		pF
Output Capacitance	C_{oss}			73		pF
Reverse Transfer Capacitance	C_{rss}			38		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	$t_{D(on)}$	$V_{DD} = 15V,$ $I_D = 1A,$ $V_{GS} = 10V,$ $R_L = 15\text{ ohm}$ $R_{GEN} = 6\text{ ohm}$		7.2		ns
Rise Time	t_r			4.5		ns
Turn-Off Delay Time	$t_{D(off)}$			12		ns
Fall Time	t_f			2.5		ns
Total Gate Charge	Q_g	$V_{DS} = 15V, I_D = 3A,$ $V_{GS} = 10V$		6.2		nC
Gate-Source Charge	Q_{gs}			0.9		nC
Gate-Drain Charge	Q_{gd}			1.8		nC

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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}	$V_{GS} = 0V, I_s = 1.25A$		0.82	1.2	V

Notes

- a. Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.
- b. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
- c. Guaranteed by design, not subject to production testing.

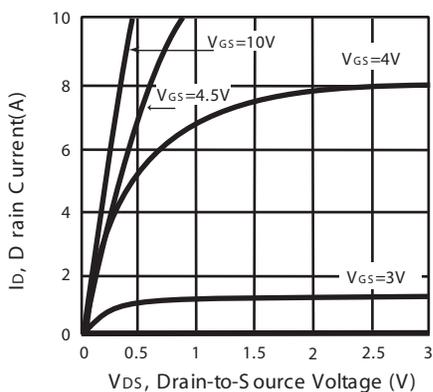


Figure 1. Output Characteristics

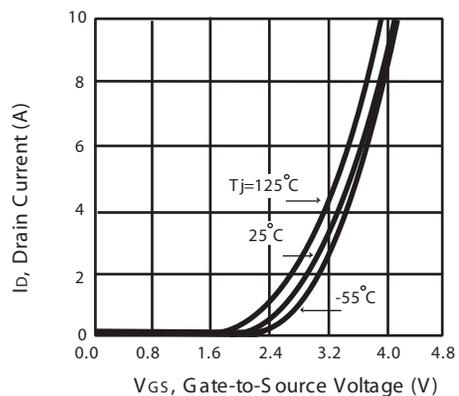


Figure 2. Transfer Characteristics

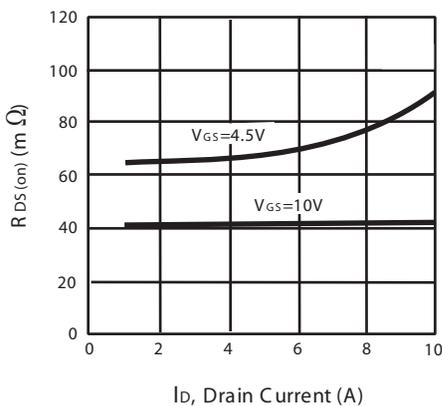


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

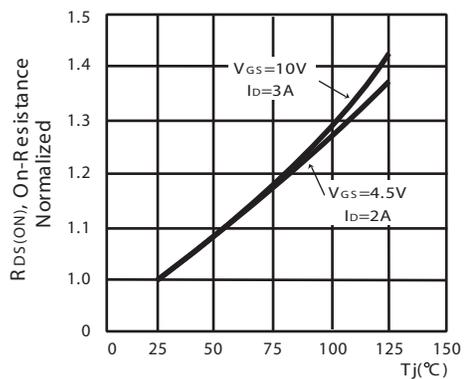


Figure 4. On-Resistance Variation with Temperature

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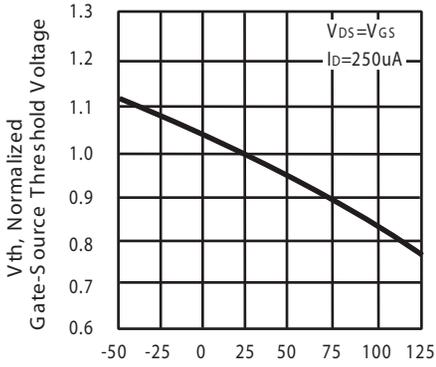


Figure 5. Gate Threshold Variation with Temperature

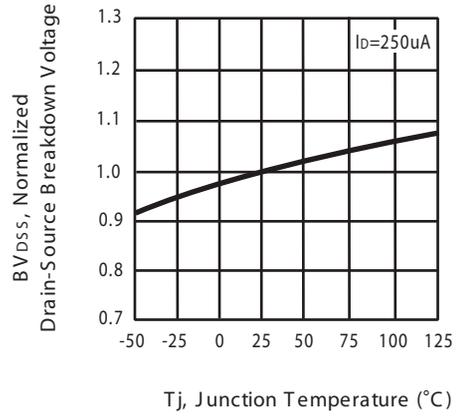


Figure 6. Breakdown Voltage Variation with Temperature

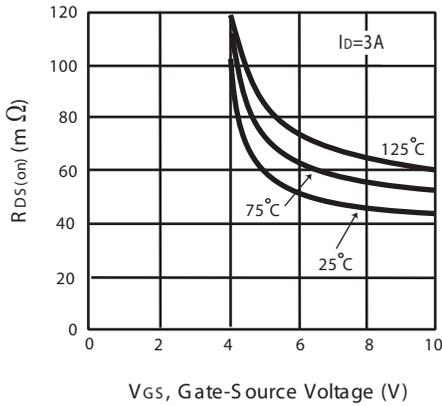


Figure 7. On-Resistance vs. Gate-Source Voltage

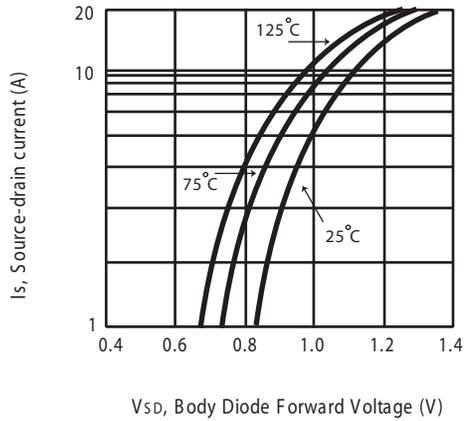


Figure 8. Body Diode Forward Voltage Variation with Source Current

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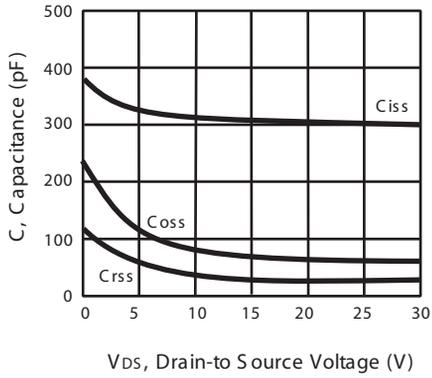


Figure 9. Capacitance

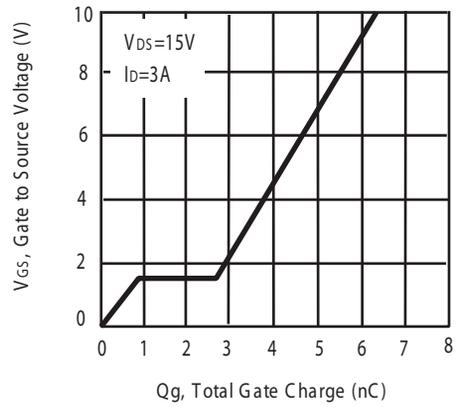


Figure 10. Gate Charge

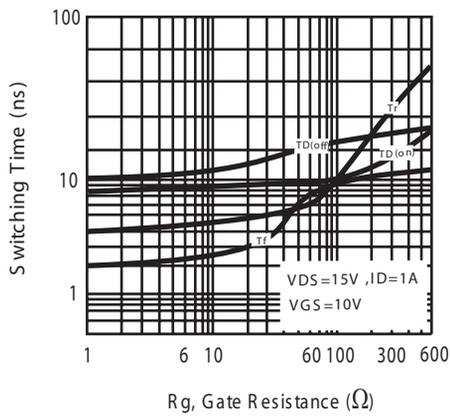


Figure 11. switching characteristics

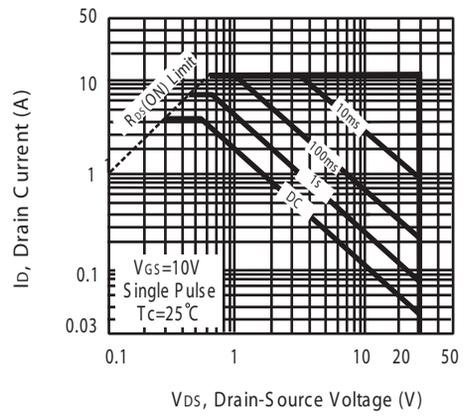


Figure 12. Maximum Safe Operating Area

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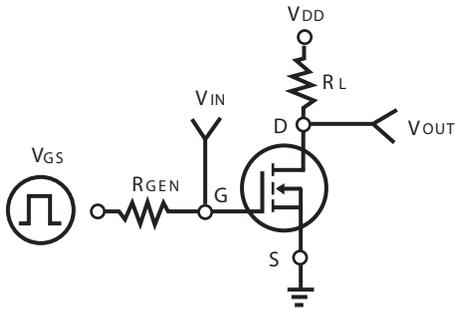


Figure 11. S switching Test Circuit

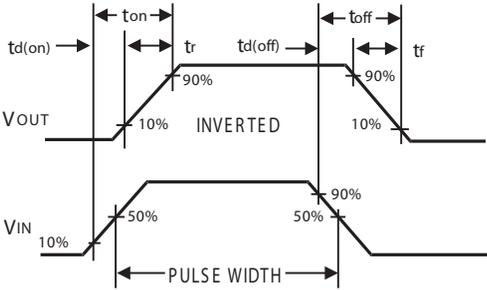
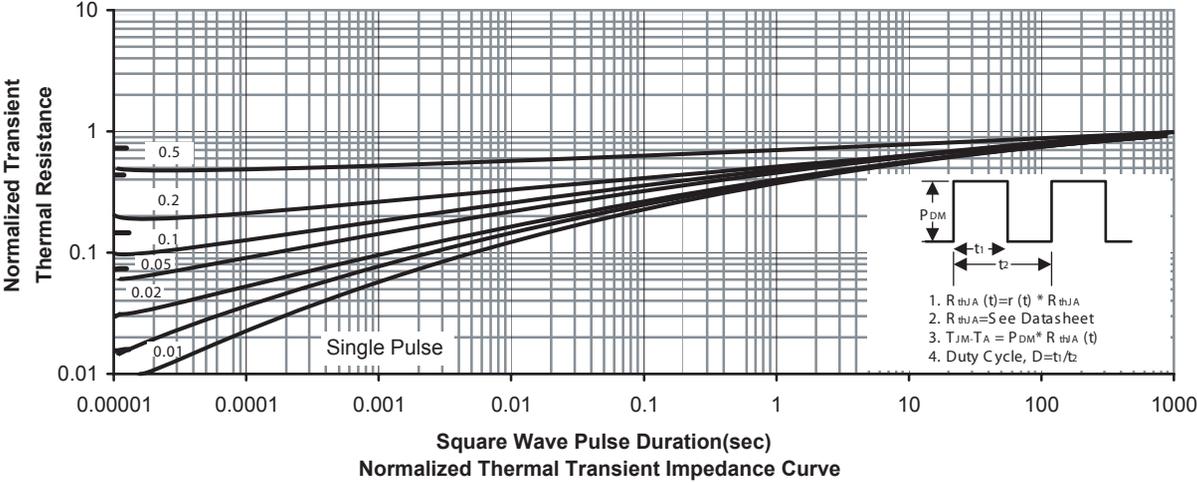


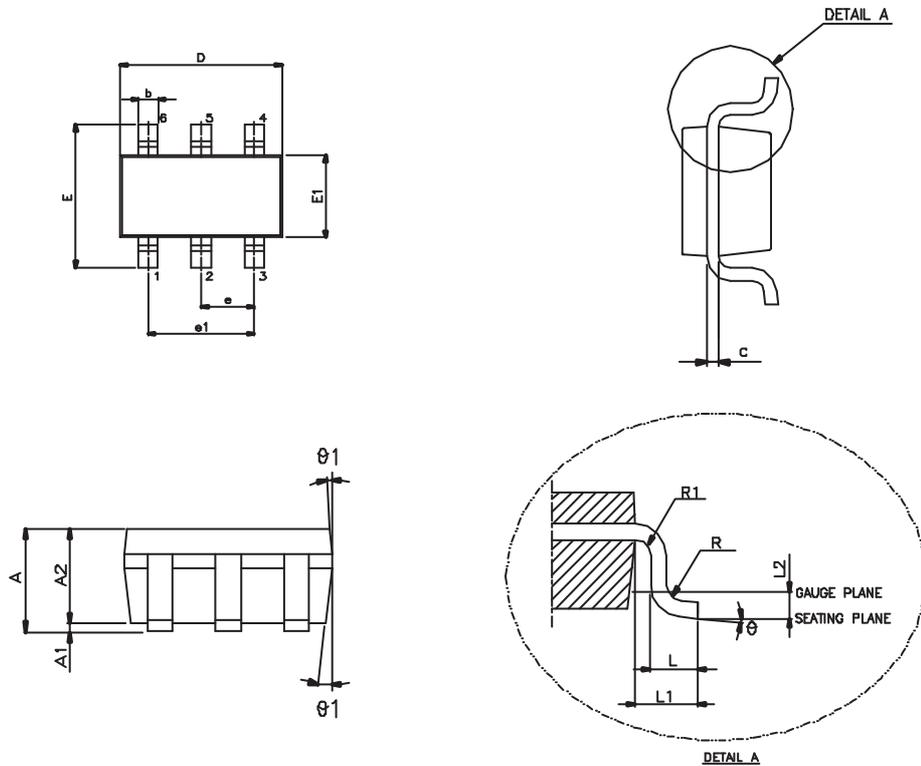
Figure 12. S switching Waveforms



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PACKAGE OUTLINE DIMENSIONS

SOT26



SYMBOL	MIN.	NOM.	MAX.
A	—	—	1.45
A1	—	—	0.15
A2	0.90	1.15	1.30
b	0.30	—	0.50
c	0.08	—	0.22
D	2.90 BSC.		
E	2.80 BSC.		
E1	1.60 BSC.		
e	0.95 BSC.		
e1	1.90 BSC.		
L	0.30	0.45	0.60
L1	0.60 REF.		
L2	0.25 BSC.		
R	0.10	—	—
R1	0.10	—	0.25
θ	0°	4°	8°
$\theta 1$	5°	10°	15°

