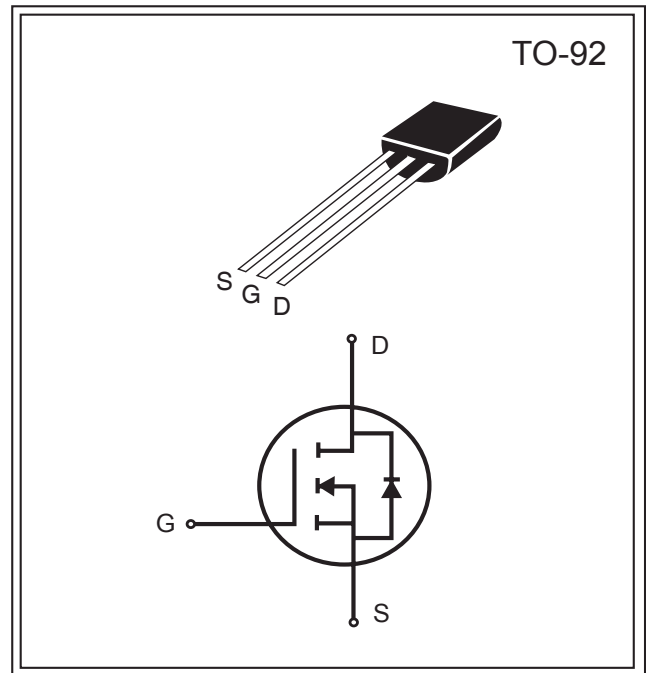


Product Summary		
$V_{DS}$ (V)	$I_D$ (A)	$R_{DS(ON)}$ ( $\Omega$ ) Max
60V	0.4A	3.0 @ $V_{GS} = 10V$
		4.0 @ $V_{GS} = 5V$

### FEATURES

- ◆ Super high dense cell design for low  $R_{DS(ON)}$ .
- ◆ Rugged and reliable.
- ◆ TO-92 package.



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous @ $T_J = 125^\circ\text{C}$	$I_D$	400	mA
-Pulsed <sup>b</sup>	$I_{DM}$	1	A
Drain-Source Diode Forward Current <sup>a</sup>	$I_S$	400	mA
Maximum Power Dissipation <sup>a</sup>	$P_D$	400	mW
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient <sup>a</sup>	$R_{\theta JA}$	313	$^\circ\text{C/W}$
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N-Channel Electrical Characteristics (TA = 25°C unless otherwise noted)						
Parameter	Symbol	Condition	Min	Typ <sup>c</sup>	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =10 μA	60			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1	μA
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =250 μA	1	2	2.5	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =250mA			3	Ω
		V <sub>GS</sub> = 5V, I <sub>D</sub> =50mA			4	
On-State Drain Current	I <sub>D(ON)</sub>	V <sub>DS</sub> =7V, V <sub>GS</sub> =10V	495			mA
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =7V, I <sub>D</sub> =200mA	78			mS
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =25V		20	50	pF
Output Capacitance	C <sub>OSS</sub>	V <sub>GS</sub> =0V		11	25	
Reverse Transfer Capacitance	C <sub>RSS</sub>	f=1.0MHz		2.5	5	
Turn-On Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> =30V, I <sub>D</sub> =100mA, V <sub>GS</sub> =10V, R <sub>GEN</sub> =10Ω		7.8	20	ns
Rise Time	t <sub>r</sub>			5.5		
Turn-Off Delay Time	t <sub>D(OFF)</sub>			7.8	20	
Fall Time	t <sub>f</sub>			2.8		
Diode-Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250mA		0.75	1.5	V

Notes :

- a. Surface Mounted on FR4 Board, t ≤ 10 sec.
- b. Pulse Test : Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
- c. Guaranteed by design, not subject to production testing.

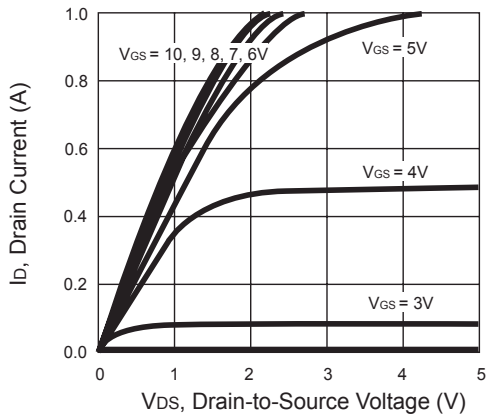


Figure 1. Output Characteristics

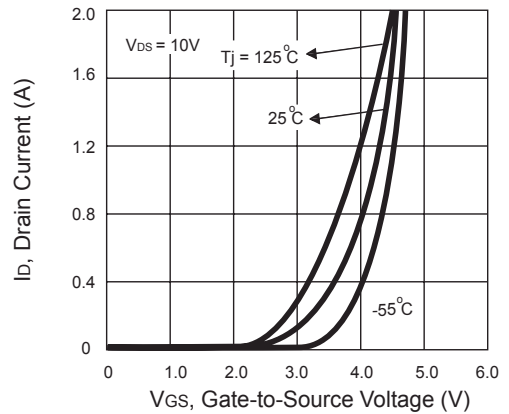


Figure 2. Transfer Characteristics

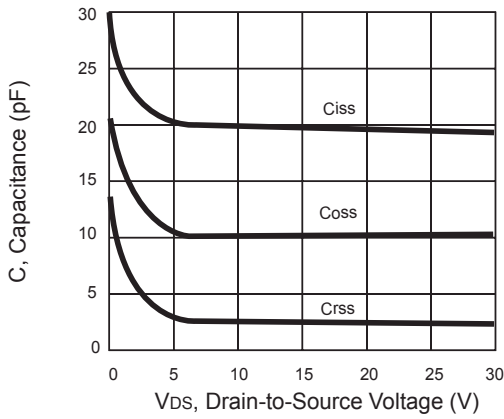


Figure 3. Capacitance

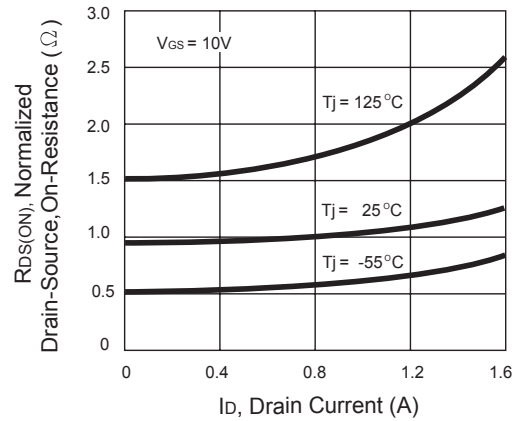


Figure 4. On-Resistance Variation with Temperature

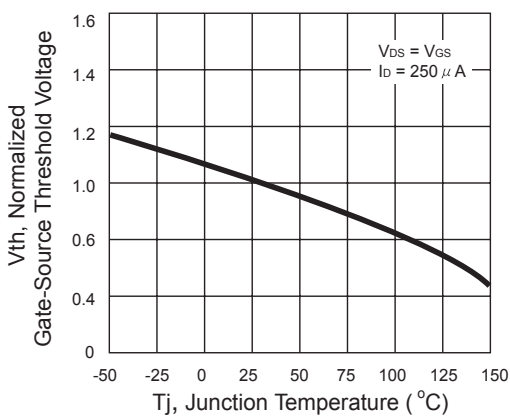


Figure 5. Gate Threshold Variation with Temperature

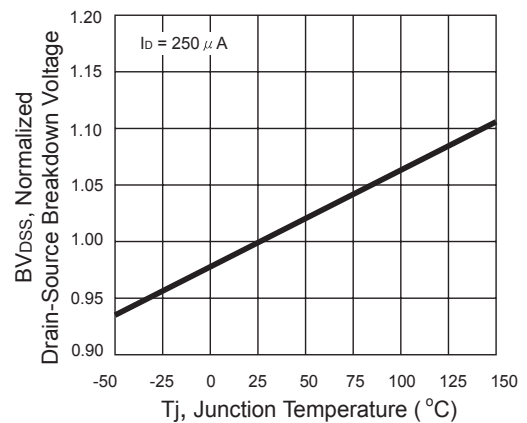


Figure 6. Breakdown Voltage Variation with Temperature



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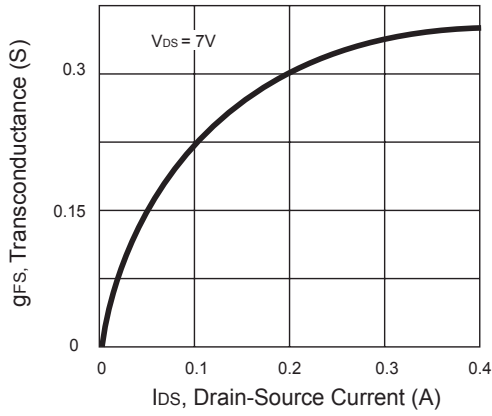


Figure 7. Transconductance Variation with Drain Current

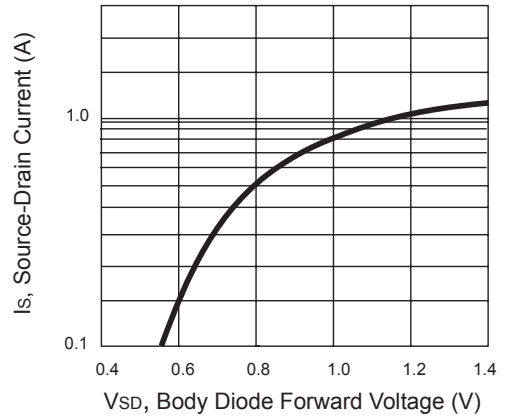


Figure 8. Body Diode Forward Voltage Variation with Source Current

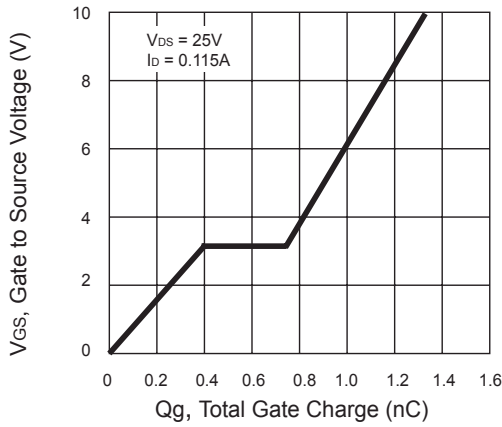


Figure 9. Gate Charge

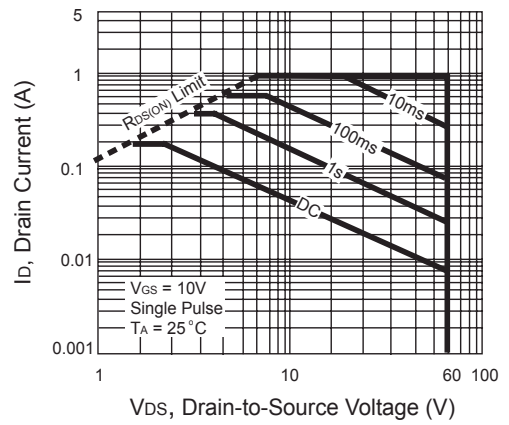


Figure 10. Maximum Safe Operating Area

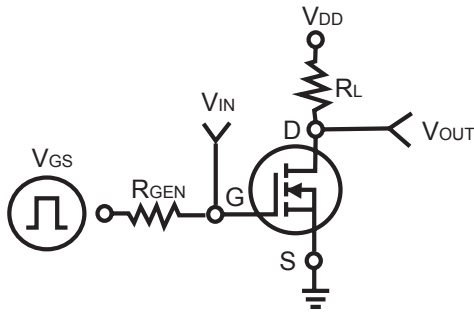


Figure 11. Switching Test Circuit

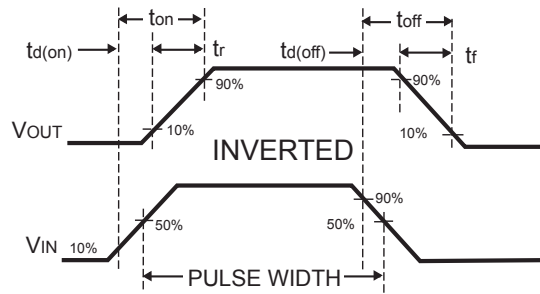


Figure 12. Switching Waveforms

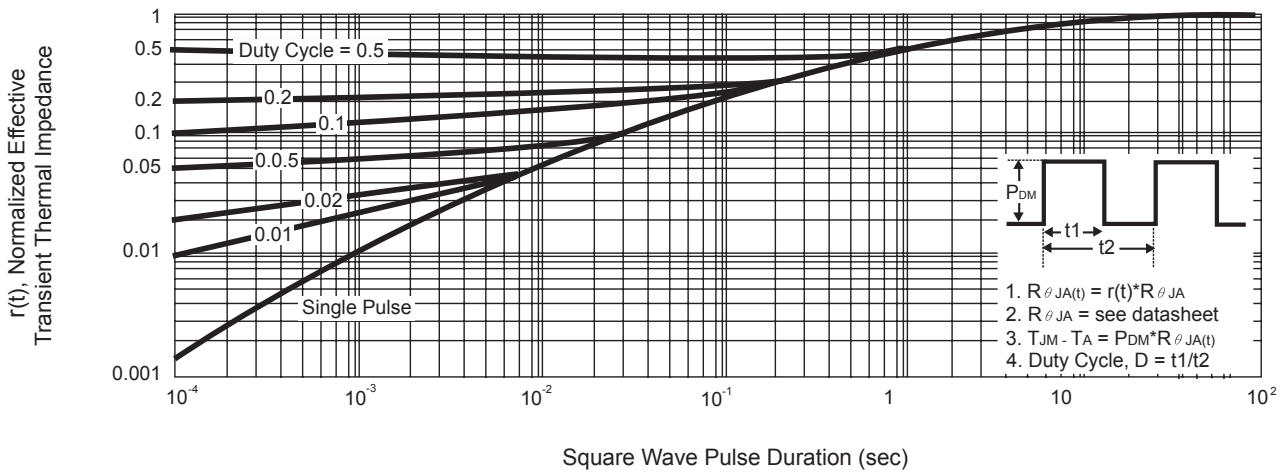


Figure 13. Normalized Thermal Transient Impedance Curve