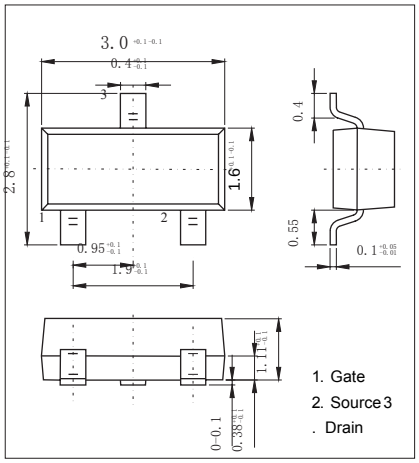
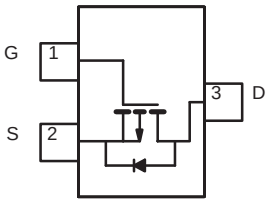
P-CHANNELMOSFETFORSWITCHING
RC60P04Y

SOT23-3(SC59) Unit:mm



■ Features

- -60V, -4.0A, $R_{DS(ON)}$ < 120mΩ @V_{GS} = -10V
  $R_{DS(ON)}$ < 150mΩ @V_{GS} = -4.5V
- High dense cell design for extremely low $R_{DS(ON)}$
- Rugged and reliable.



ABSOLUTE MAXIMUM RATINGS T_A = 25℃ unless otherwise noted

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	-4.0	A
Drain Current-Pulsed [a]	I_{DM}	-17.2	A
Maximum Power Dissipation	P_D	1.6	W
Operating and Store Temperature Range	T_J,T_{stg}	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Limit	Units
Thermal Resistance, Junction-to-Ambient [b]	$R_{\theta JA}$	42	℃/W

■ Marking

Marking	60P04Y ****

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Electrical Characteristics T_A = 25 ◦ C unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = -250μA	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -60V, V_{GS} = 0V			-1	μA
Gate Body Leakage Current, Forward	I_{GSSF}	V_{GS} = 20V, V_{DS} = 0V			100	nA
Gate Body Leakage Current, Reverse	I_{GSSR}	V_{GS} = -20V, V_{DS} = 0V			-100	nA
On Characteristics [c]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = -250μA	-1		-3	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -4A		90	120	mΩ
		V_{GS} = -4.5V, I_D = -2A		110	150	mΩ
Dynamic Characteristics [d]						
Input Capacitance	C_{iss}	V_{DS} = -30V, V_{GS} = 0V, f= 1.0 MHz		800		pF
Output Capacitance	C_{oss}			175		pF
Reverse Transfer Capacitance	C_{rss}			120		pF
Switching Characteristics [d]						
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -30V, I_D = -1A, V_{GS} = -10V, R_{GEN} = 6Ω		13	26	ns
Turn-On Rise Time	t_r			4	8	ns
Turn-Off Delay Time	$t_{d(off)}$			45	90	ns
Turn-On Fall Time	t_f			6	12	ns
Total Gate Charge	Q_g	V_{DS} = -30V, I_D = -3.5A, V_{GS} = -10V		22.6	14.3	nC
Gate-Source Charge	Q_{gs}			2.4		nC
Gate-Drain Charge	Q_{gd}			5.7		nC
Drain-Source Diode Characteristics and Maximun Ratings						
Drain-Source Diode Forward Current [b]	I_S				-2.5	A
Drain-Source Diode Forward Voltage [c]	V_{SD}	V_{GS} = 0V, I_S = -1.3A			-1.2	V

Notes :
a.Repetitive Rating : Pulse width limited by maximum junction temperature.
b.Surface Mounted on FR4 Board, t < 10 sec.
c.Pulse Test : Pulse Width < 300μs, Duty Cycle < 2%.
d.Guaranteed by design, not subject to production testing.

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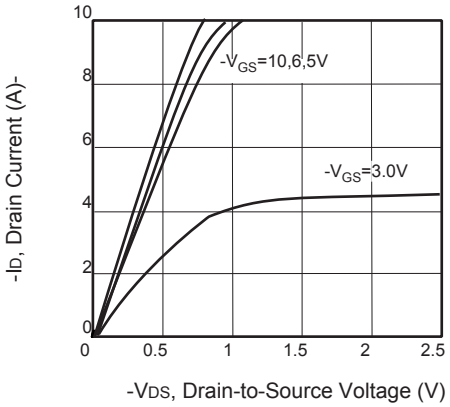

Figure 1. Output Characteristics

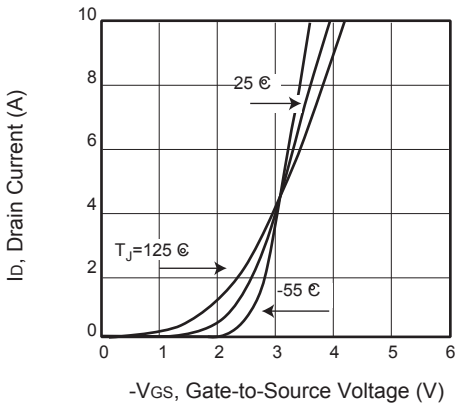

Figure 2. Transfer Characteristics

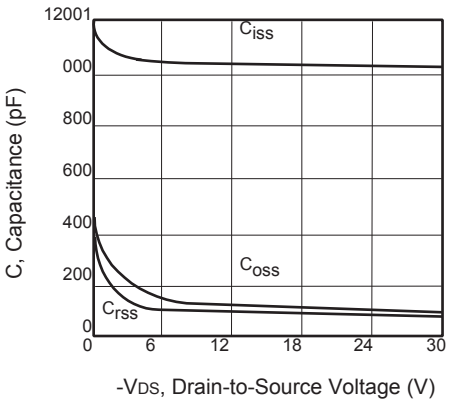

Figure 3. Capacitance

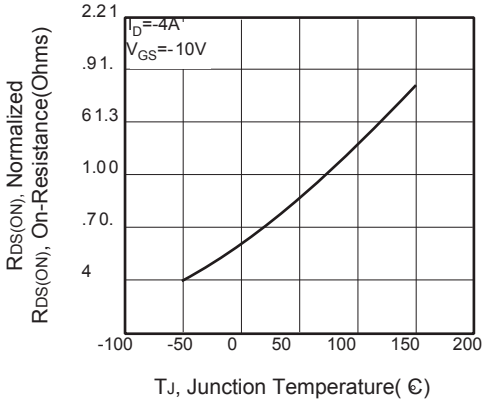

Figure 4. On-Resistance Variation with Temperature

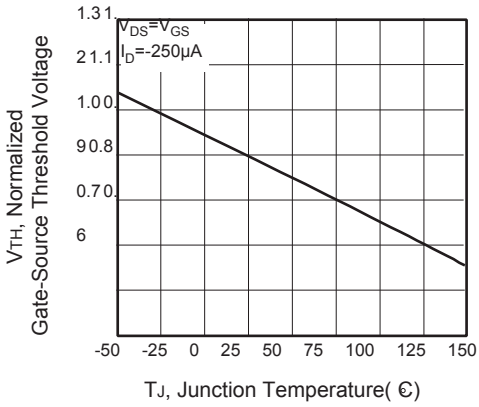

Figure 5. Gate Threshold Variation with Temperature

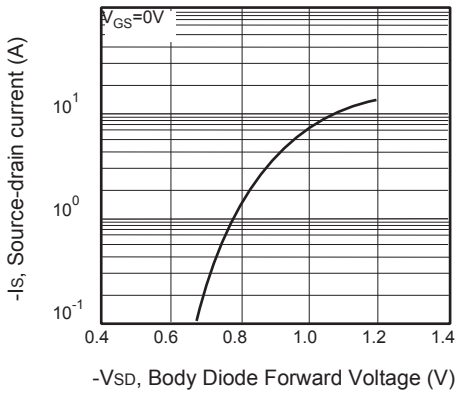

Figure 6. Body Diode Forward Voltage Variation with Source Current

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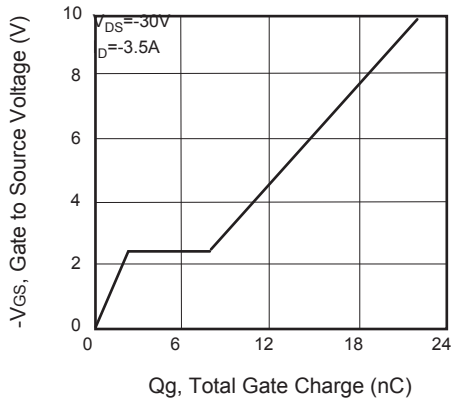

Figure 7. Gate Charge

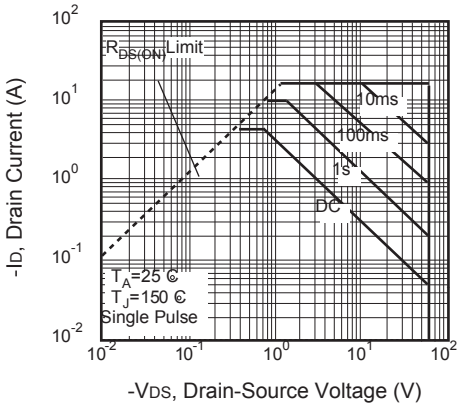

Figure 8. Maximum Safe Operating Area

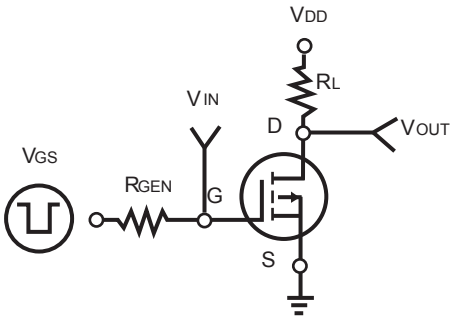

Figure 9. Switching Test Circuit

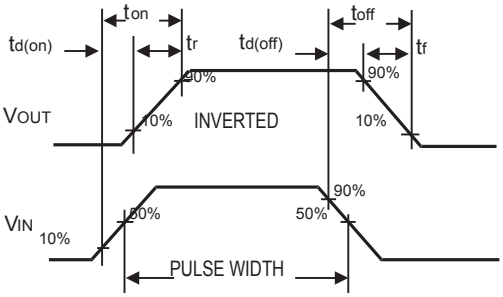

Figure 10. Switching Waveforms

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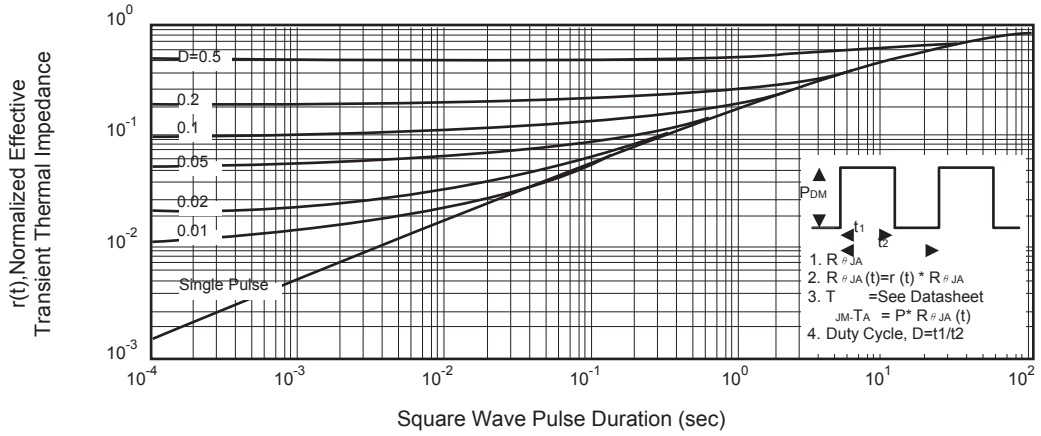

Figure 11. Normalized Thermal Transient Impedance Curve