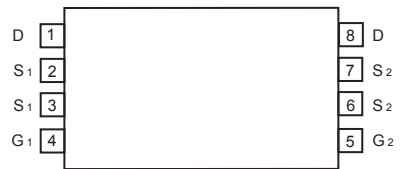
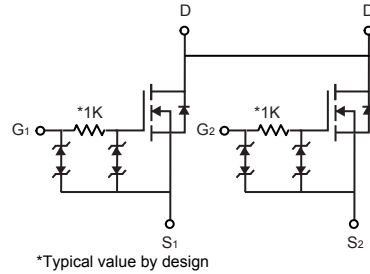
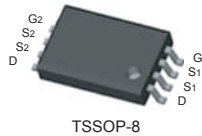


Dual N-Channel Enhancement Mode Field Effect Transistor

PRELIMINARY

FEATURES

- 20V, 8.5A, $R_{DS(ON)} = 14m\Omega @ V_{GS} = 10V$.
 $R_{DS(ON)} = 15m\Omega @ V_{GS} = 4.5V$.
 $R_{DS(ON)} = 20m\Omega @ V_{GS} = 2.5V$.
 $R_{DS(ON)} = 28m\Omega @ V_{GS} = 1.8V$.
- Super High dense cell design for extremely low $R_{DS(ON)}$.
- High power and current handling capability.
- Lead-free plating ; RoHS compliant.
- TSSOP-8 for Surface Mount Package.



ABSOLUTE MAXIMUM RATINGS $T_A = 25^\circ C$ unless otherwise noted

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous	I_D	8.5	A
Drain Current-Pulsed ^a	I_{DM}	34	A
Maximum Power Dissipation	P_D	1.5	W
Operating and Store Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Limit	Units
Thermal Resistance, Junction-to-Ambient ^b	$R_{\theta JA}$	83	$^\circ C/W$

Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate Body Leakage Current, Forward	I_{GSSF}	$V_{GS} = 12V, V_{DS} = 0V$			10	μA
Gate Body Leakage Current, Reverse	I_{GSSR}	$V_{GS} = -12V, V_{DS} = 0V$			-10	μA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	0.4		1.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 8A$		11	14	$m\Omega$
		$V_{GS} = 4.5V, I_D = 4A$		12	15	$m\Omega$
		$V_{GS} = 2.5V, I_D = 2A$		14	20	$m\Omega$
		$V_{GS} = 1.8V, I_D = 1A$		20	28	$m\Omega$
Dynamic Characteristics ^c						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1.0\text{ MHz}$		35		pF
Output Capacitance	C_{oss}			185		pF
Reverse Transfer Capacitance	C_{rss}			15		pF
Switching Characteristics ^c						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 1A, V_{GS} = 10V, R_{GEN} = 3\Omega$		487		μs
Turn-On Rise Time	t_r			800		μs
Turn-Off Delay Time	$t_{d(off)}$			1728		μs
Turn-Off Fall Time	t_f			6180		μs
Total Gate Charge	Q_g	$V_{DS} = 10V, I_D = 8A, V_{GS} = 4.5V$		4.3		nC
Gate-Source Charge	Q_{gs}			1.1		nC
Gate-Drain Charge	Q_{gd}			2.5		nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Current	I_S				1	A
Drain-Source Diode Forward Voltage ^b	V_{SD}	$V_{GS} = 0V, I_S = 1A$			1.2	V
Notes : <input type="checkbox"/> a. Repetitive Rating : Pulse width limited by maximum junction temperature. b. Surface Mounted on FR4 board, $t \leq 10\text{sec}$. <input type="checkbox"/> b. Pulse Test : Pulse Width < 300 μs , Duty Cycle < 2%. <input type="checkbox"/> c. Guaranteed by design, not subject to production testing. <input type="checkbox"/>						

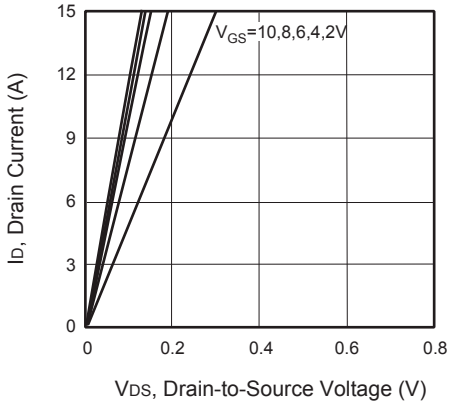


Figure 1. Output Characteristics

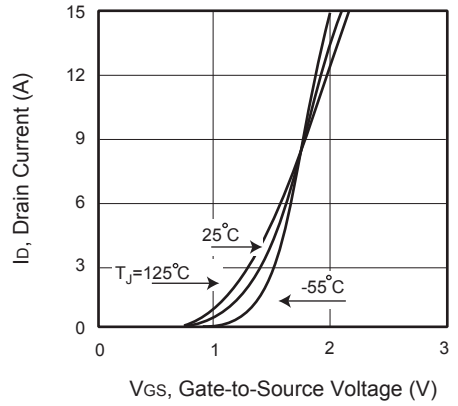


Figure 2. Transfer Characteristics

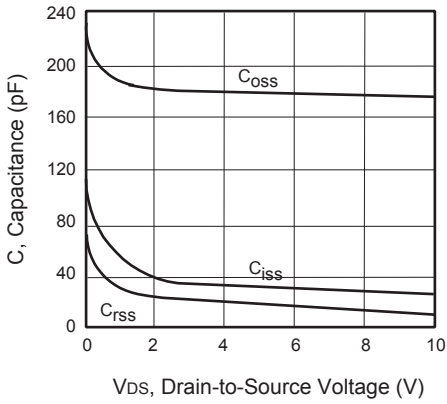


Figure 3. Capacitance

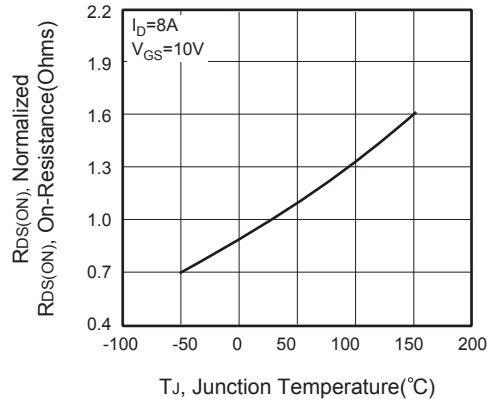


Figure 4. On-Resistance Variation with Temperature

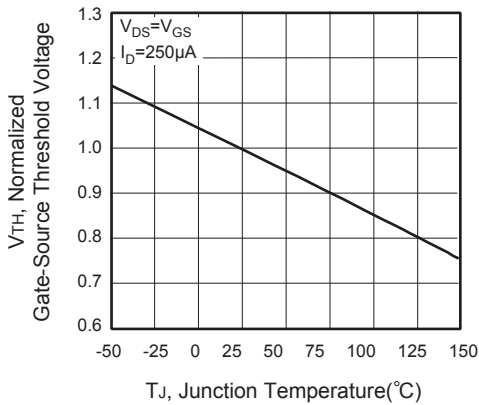


Figure 5. Gate Threshold Variation with Temperature

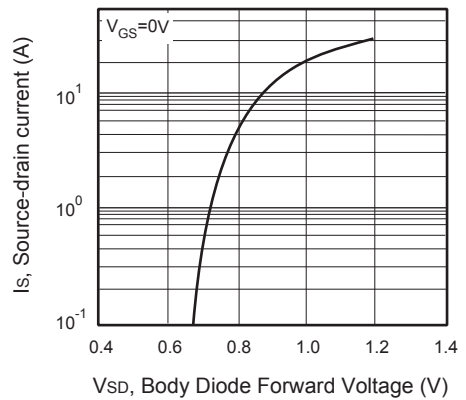


Figure 6. Body Diode Forward Voltage Variation with Source Current

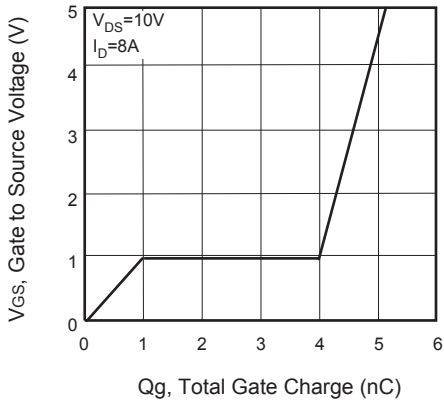


Figure 7. Gate Charge

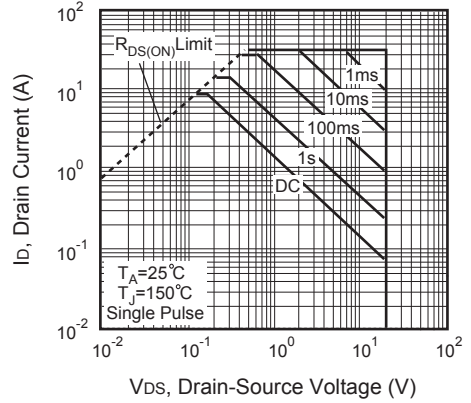


Figure 8. Maximum Safe Operating Area

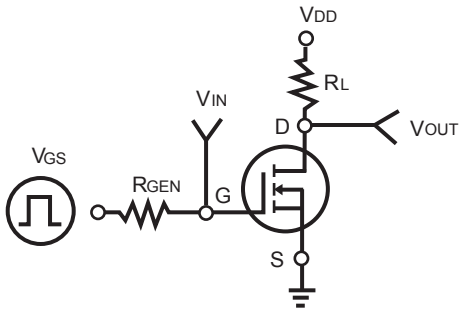


Figure 9. Switching Test Circuit

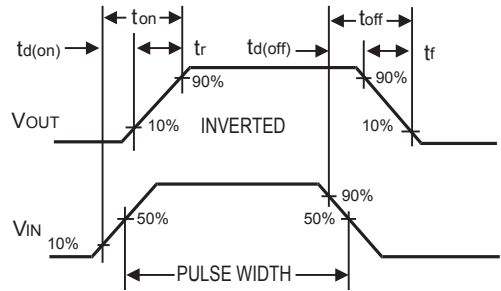


Figure 10. Switching Waveforms

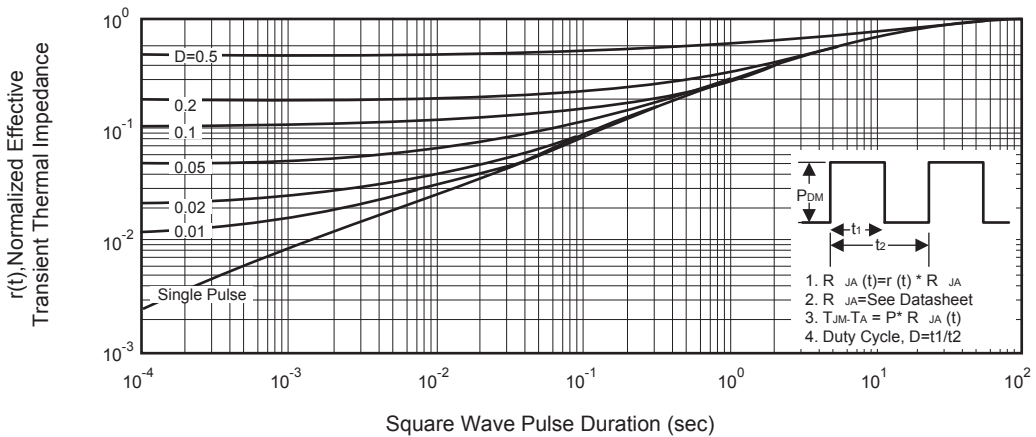


Figure 10. Normalized Thermal Transient Impedance Curve