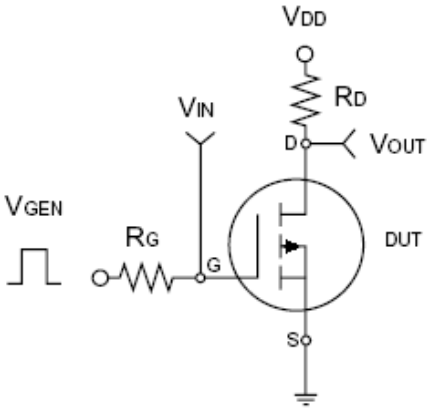
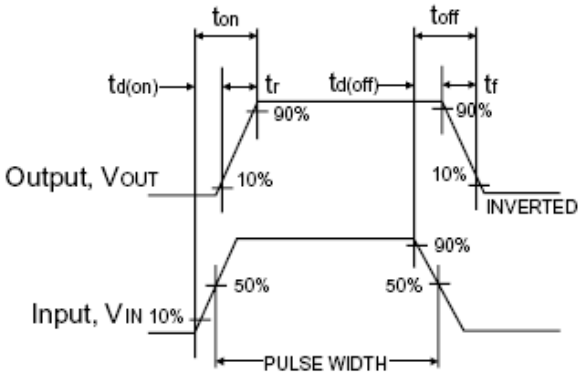
Electrical Specifications (Ta = 25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	BV_{DSS}	30	--	--	V
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	$V_{GS(TH)}$	1	--	3	V
Gate Body Leakage	V_{GS} = ±20V, V_{DS} = 0V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS} = 30V, V_{GS} = 0V	I_{DSS}	--	--	1.0	μA
On-State Drain Current	V_{DS} ≥ 4.5V, V_{GS} = 10V	$I_{D(ON)}$	6	--	--	A
Drain-Source On-State Resistance	V_{GS} = 10V, I_D = 3.5A	$R_{DS(ON)}$	--	46	57	mΩ
	V_{GS} = 4.5V, I_D = 2.8A		--	70	94	
Forward Transconductance	V_{DS} = 15V, I_D = 3.5A	g_{fs}	--	11	--	S
Diode Forward Voltage	I_S = 1.7A, V_{GS} = 0V	V_{SD}	--	--	1.2	V
Dynamic[b]						
Total Gate Charge	V_{DS} = 15V, I_D = 3.5A, V_{GS} = 10V	Q_g	--	4.2	7	nC
Gate-Source Charge		Q_{gs}	--	1.9	--	
Gate-Drain Charge		Q_{gd}	--	1.35	--	
Input Capacitance	V_{DS} = 15V, V_{GS} = 0V, f = 1.0MHz	C_{iss}	--	555	--	pF
Output Capacitance		C_{oss}	--	120	--	
Reverse Transfer Capacitance		C_{rss}	--	60	--	
Switching[c]						
Turn-On Delay Time	V_{DD} = 15V, R_L = 15Ω, I_D = 1A, V_{GEN} = 10V, R_G = 6Ω	$t_{d(on)}$	--	4.2	5.5	nS
Turn-On Rise Time		t_r	--	19	25	
Turn-Off Delay Time		$t_{d(off)}$	--	13	17	
Turn-Off Fall Time		t_f	--	9	12	

Notes:
a. pulse test: PW ≤300μS, duty cycle ≤2%
b. For DESIGN AID ONLY, not subject to production testing.
b. Switching time is essentially independent of operating temperature.



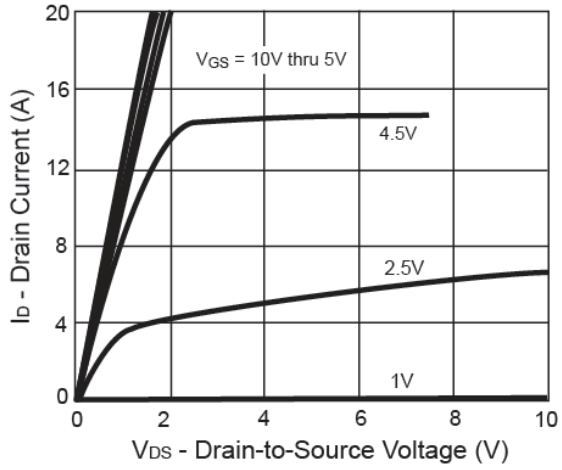
Switching Test Circuit



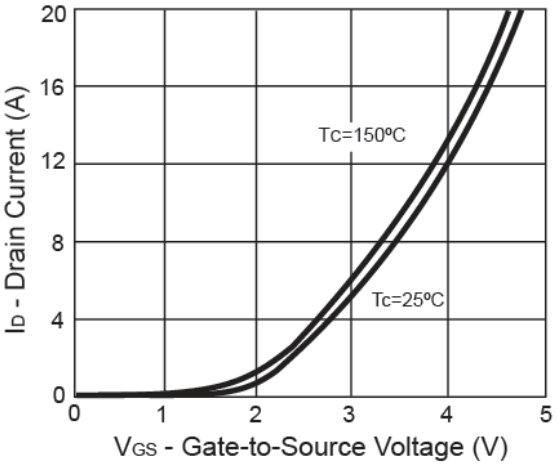
Switchin Waveforms

Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

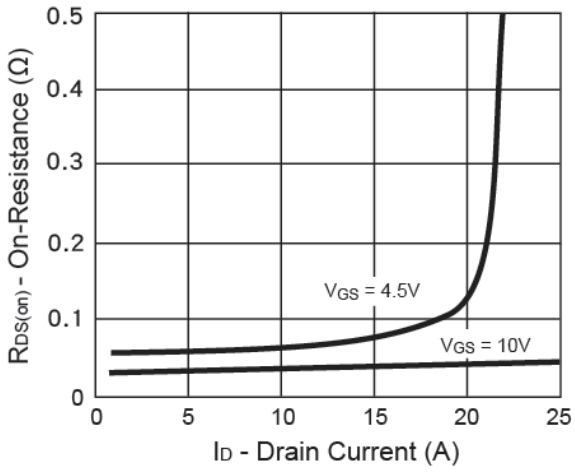
Output Characteristics



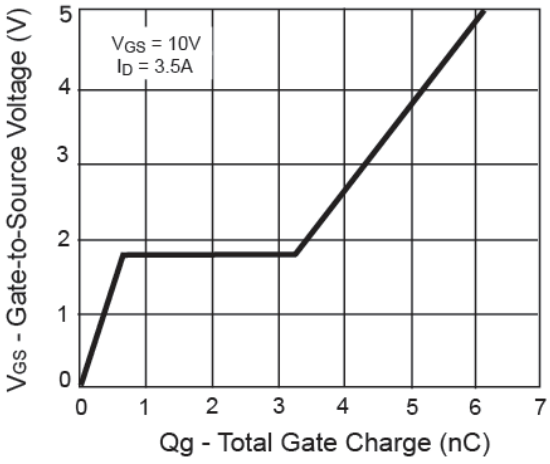
Transfer Characteristics



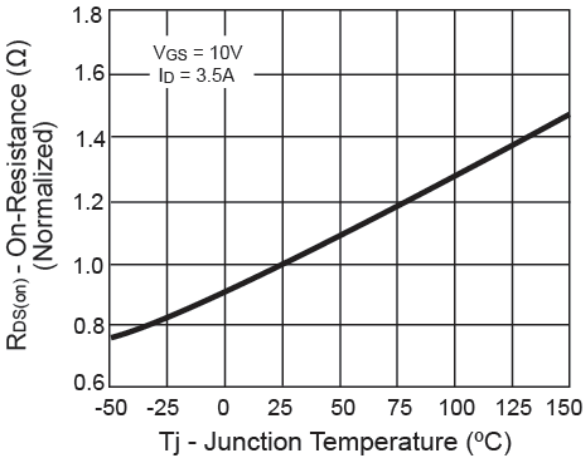
On-Resistance vs. Drain Current



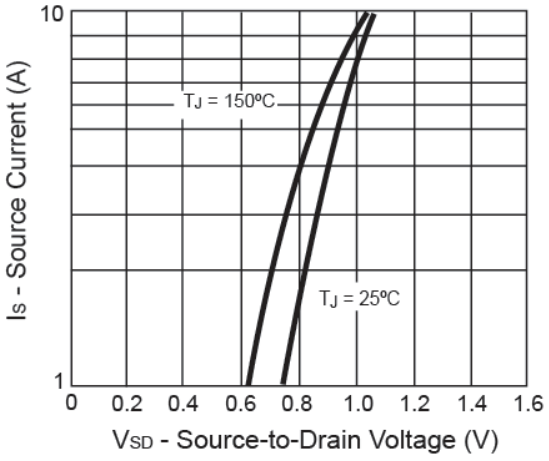
Gate Charge



On-Resistance vs. Junction Temperature

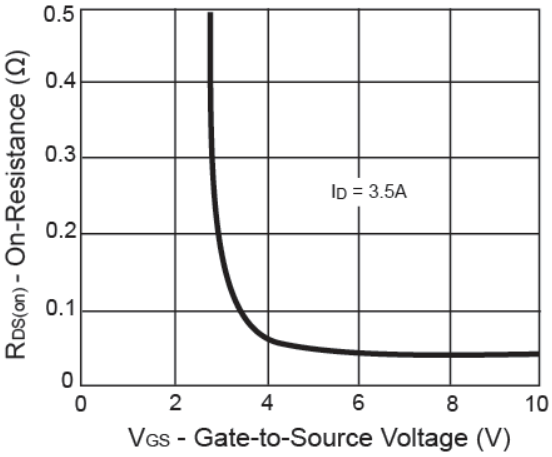


Source-Drain Diode Forward Voltage

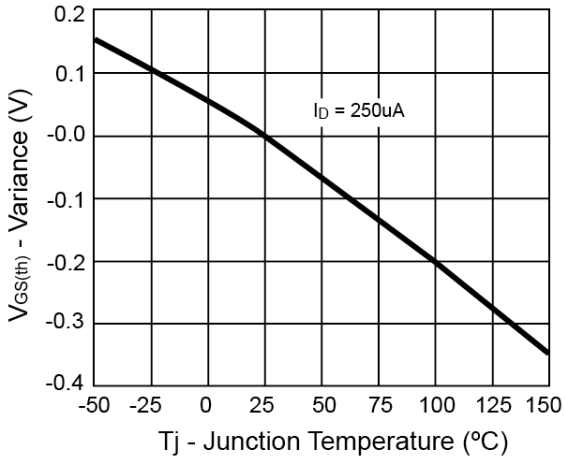


Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

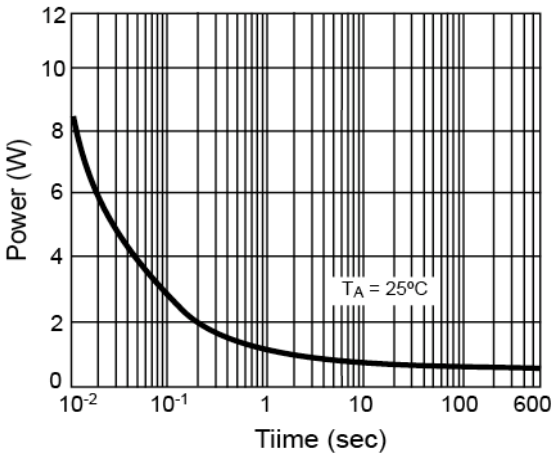
On-Resistance vs. Gate-Source Voltage



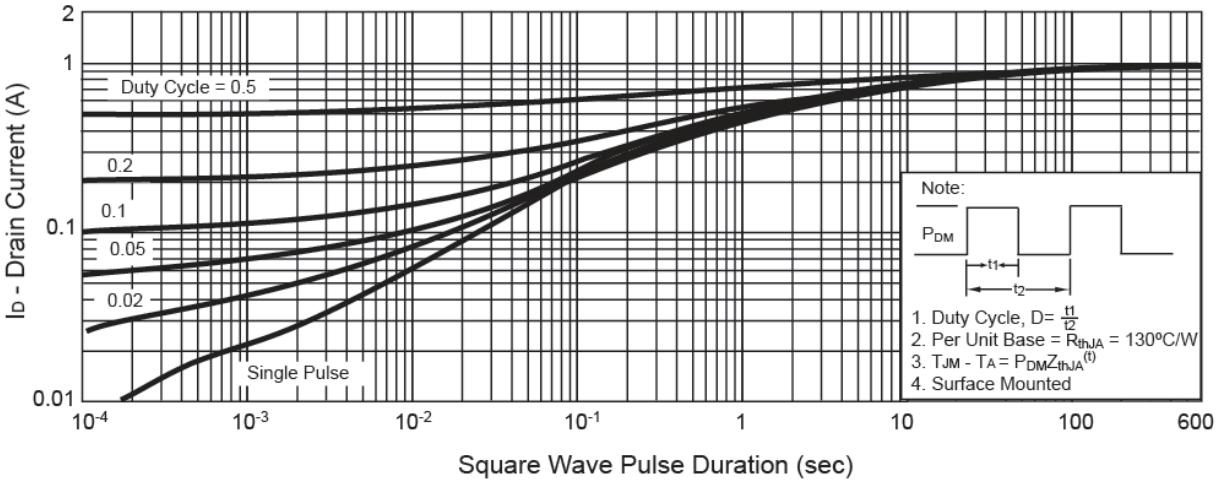
Threshold Voltage



Single Pulse Power



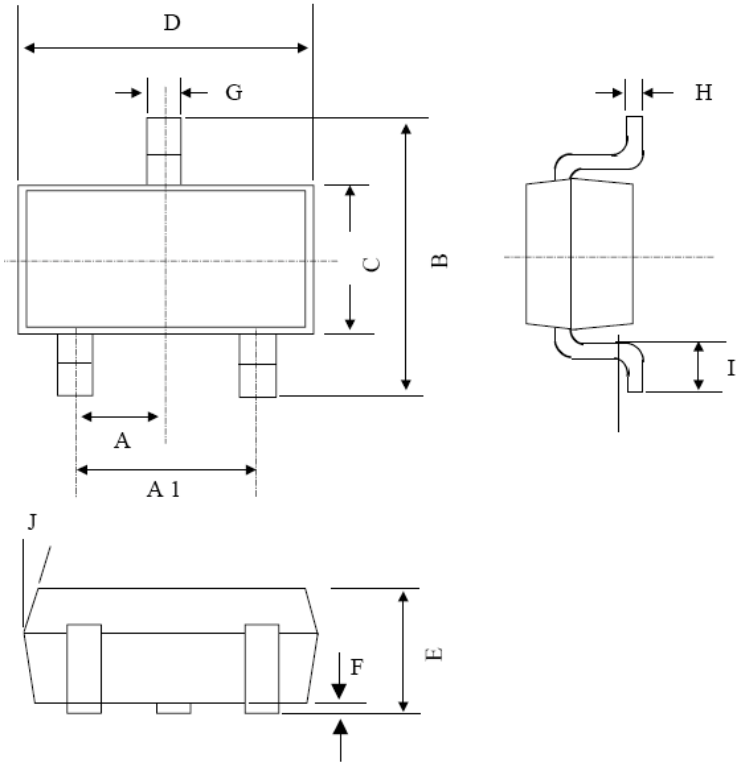
Normalized Thermal Transient Impedance, Junction-to-Ambient



TSM2306

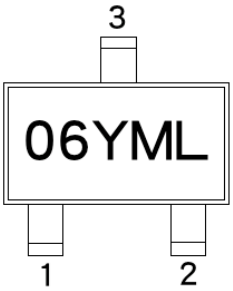
30V N-Channel MOSFET

SOT-23 Mechanical Drawing



SOT-23 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX.
A	0.95 BSC		0.037 BSC	
A1	1.9 BSC		0.074 BSC	
B	2.60	3.00	0.102	0.118
C	1.40	1.70	0.055	0.067
D	2.80	3.10	0.110	0.122
E	1.00	1.30	0.039	0.051
F	0.00	0.10	0.000	0.004
G	0.35	0.50	0.014	0.020
H	0.10	0.20	0.004	0.008
I	0.30	0.60	0.012	0.024
J	5º	10º	5º	10º

Marking Diagram



06 = Device Code
Y = Year Code
M = Month Code for Halogen Free Product

O =Jan	**P** =Feb	**Q** =Mar	**R** =Apr
S =May	**T** =Jun	**U** =Jul	**V** =Aug
W =Sep	**X** =Oct	**Y** =Nov	**Z** =Dec

L = Lot Code

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