preliminary

CMY12603PL-S8

30V P-Channel Fast Switching MOSFET

Features

- Advanced Trench MOS Technology
- 100% EAS Guaranteed
- Green Device Available
- Low $R_{DS(ON)}$

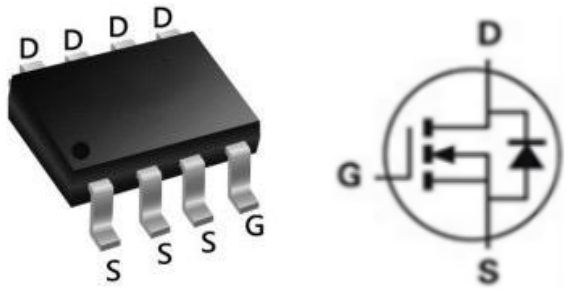
Product Summary

Item	Typical Value	Unit
V_{DS} @ T_{JMAX}	-30	V
$R_{DS(on)}$ @ V_{GS} =-10V (Max)	20	mΩ
I_D	-9.5	A

Applications

- Load Switches
- Hard Swithing and High Speed Circuit
- BLDC Motor

SOP8 Pin Description



Absolute Ratings (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Pulse Drain Current Tested	I_{DM}	-50	A
Continuous Drain Current, T_C = 25°C/70°C	I_D	-9.5/-7.6	A
Single Pulse UIS Capability, 0.1mH	E_{AS}	72	mJ
Maximum Power Dissipation	P_D	3.1	W
Junction Temperature Maximum	T_{JMAX}	150	°C
Storage Temperature	$T_{Storage}$	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value(Max)	Units
Thermal Resistance Junction to ambient	$R_{\theta JA}$	75	°C/W

Electrical Characteristics

Static (T_J=25℃ unless otherwise specified)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = -250uA	-30	---	---	V
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	---	---	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V	---	---	-1	uA
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = -6A	---	---	20	mΩ
		V_{GS} = -4.5V, I_D = -4A	---	---	32	
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250uA	-1.0	---	-2.5	V
Dynamic (T_J=25℃ unless otherwise specified)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15 V, f = 1MHz	---	1345	---	pF
Output Capacitance	C_{oss}		---	194	---	
Reverse Transfer Capacitance	C_{rss}		---	158	---	
Total Gate Charge	Q_g	V_{DS} = -15V, I_D = -6A, V_{GS} = -4.5 V	---	12.6	---	nC
Gate-Source Charge	Q_{gs}		---	4.8	---	
Gate-Drain Charge	Q_{gd}		---	4.8	---	
Turn-on delay time	$T_{d(on)}$	V_{DD} = -15V, I_D = -6A, V_{GS} = -10V, R_G=3.3Ω	---	4.6	---	nS
Rise time	T_r		---	14.8	---	
Turn-off delay time	$T_{d(off)}$		---	41	---	
Fall time	T_f		---	19.6	---	
Reverse Diode Characteristics						
Continuous Source Current	I_S	V_G = V_D = 0V, Force Current	---	---	-9.5	A
Diode Forward Voltage	V_{SD}	IS = -1A, VGS = 0V	---	---	-1.2	V
Reverse Recovery Time	t_{rr}	V_{GS} = 0V, I_F = -6A, dI_F/dt=100A/us	---	16.3	---	ns
Reverse Recovery Charge	Q_{rr}		---	5.9	---	nC

Typical Characteristics

Typical Characteristics

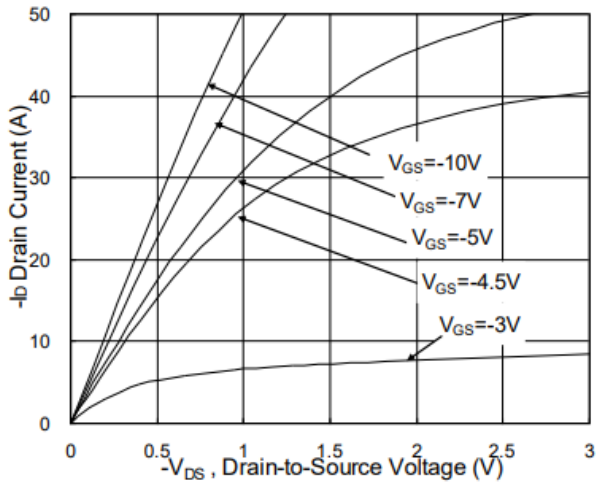


Fig.1 Typical Output Characteristics

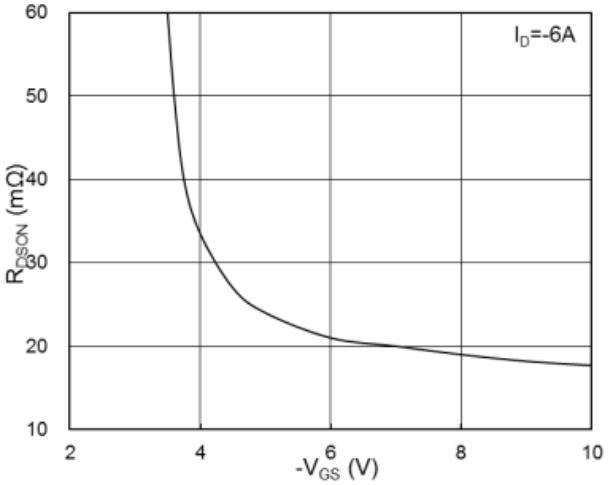


Fig.2 On-Resistance v.s Gate-Source

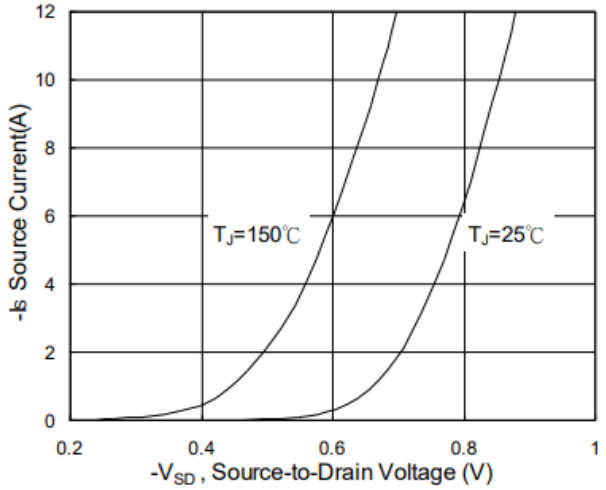


Fig.3 Forward Characteristics of Reverse

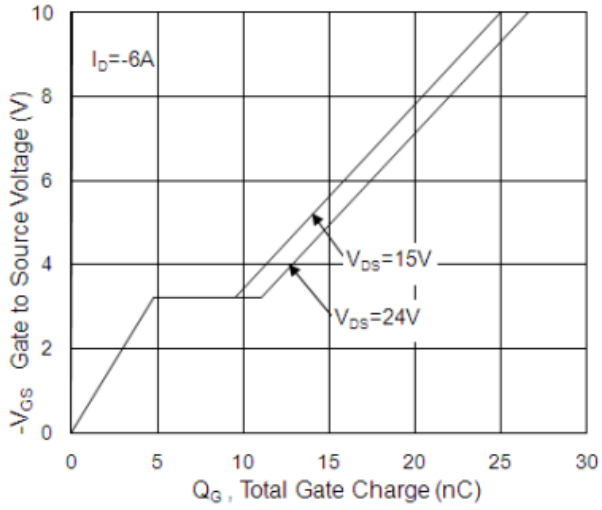


Fig.4 Gate-Charge Characteristics

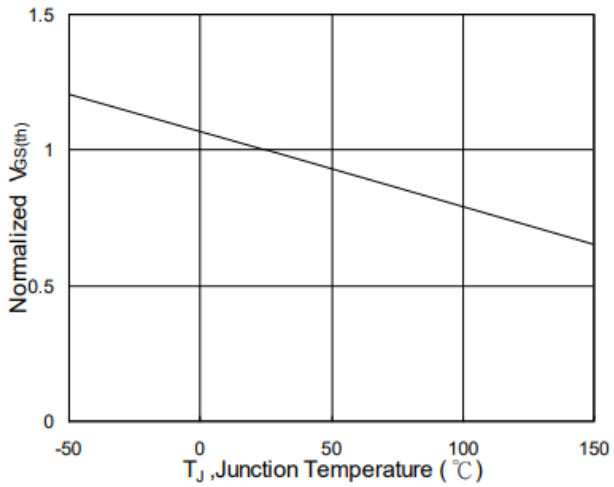


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

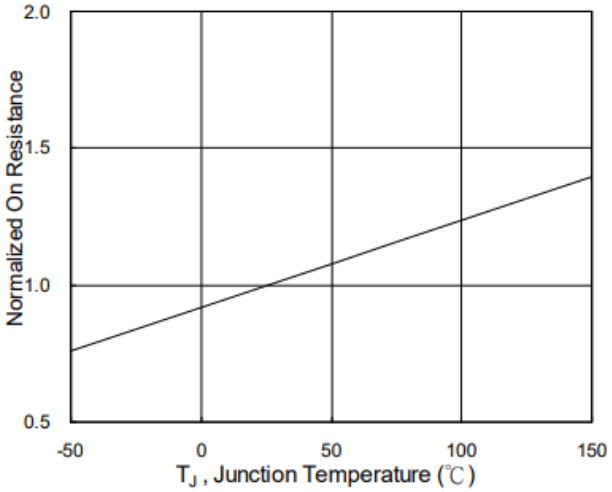


Fig.6 Normalized R_{DSON} vs. T_J

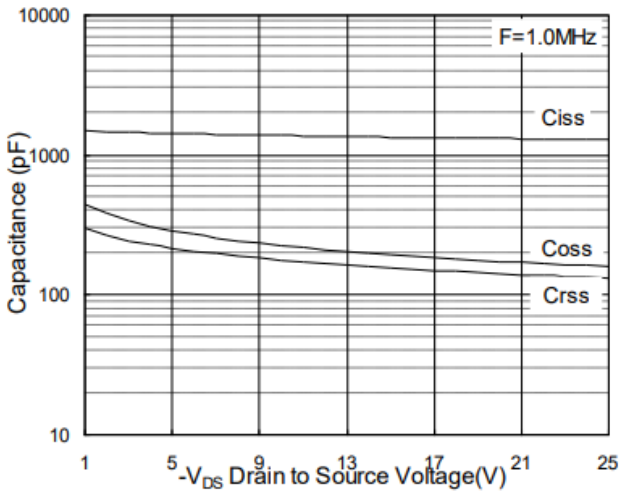


Fig.7 Capacitance

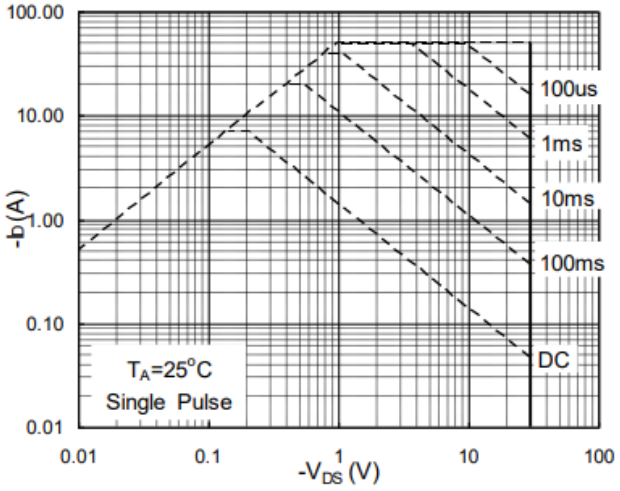


Fig.8 Safe Operating Area

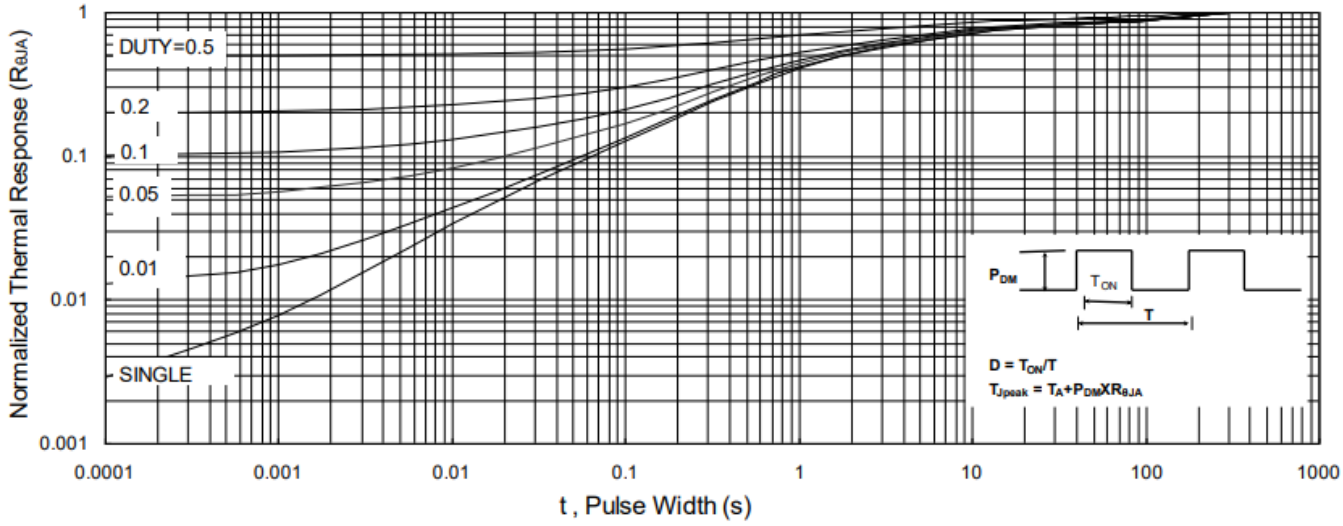


Fig.9 Normalized Maximum Transient Thermal Impedance

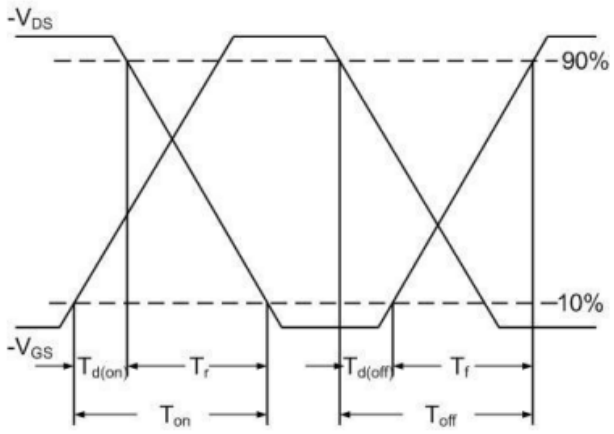


Fig.10 Switching Time Waveform

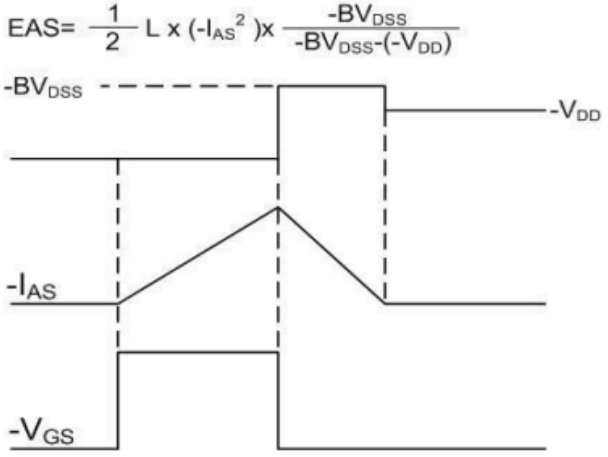
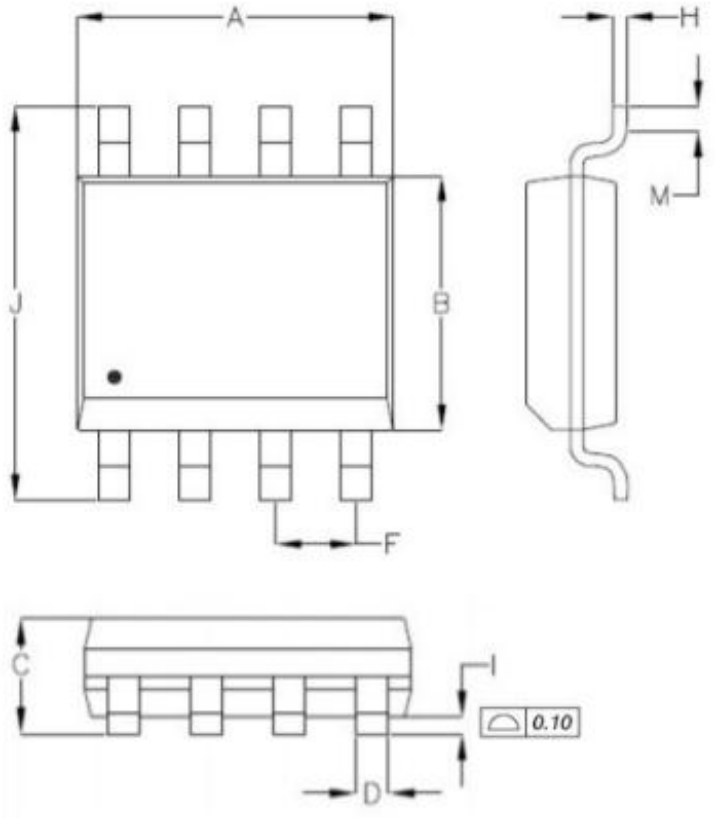


Fig.11 Unclamped Inductive Switching Waveform

SOP-8L Package Outline



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.700	5.150	0.185	0.203
B	3.700	4.100	0.146	0.161
C	1.23	1.753	0.048	0.069
D	0.310	0.510	0.012	0.020
F	1.070	1.470	0.042	0.058
H	0.160	0.254	0.006	0.010
I	0.050	0.254	0.002	0.010
J	5.750	6.250	0.226	0.246
M	0.400	1.270	0.016	0.050