preliminary

CMY1106NL-56

60V N-Channel Fast Switching MOSFET

Features

- 100% EAS Guaranteed
- Green Device Available
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

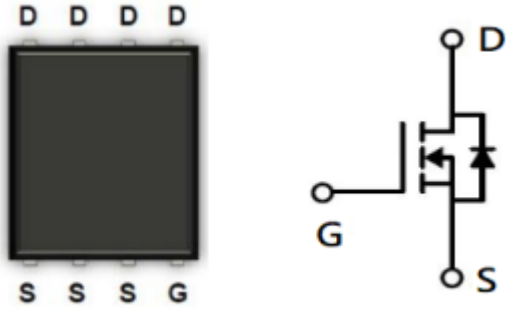
Product Summary

Item	Typical Value	Unit
V_{DS}	60	V
$R_{DS(on)}$ @ V_{GS} =10V (Max)	2.1	mΩ
I_D	100	A

Applications

- Motor Control
- Synchronous rectifier applications
- DC/DC Converters

PRPAK5x6 Pin Description



Absolute Ratings (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, T_C = 25°C/100°C	I_D	100/66	A
Pulsed Drain Current	I_{DM}	400	A
Single Pulse Avalanche Energy (L=0.5mH)	EAS	306	mJ
Total Power Dissipation	P_D	83	W
Junction Temperature Maximum	T_{JMAX}	150	°C
Storage Temperature	$T_{Storage}$	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Units
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	55	°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	60	---	---	V
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	---	---	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 54V, V_{GS} = 0V	---	---	1	uA
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D =20A	---	---	2.1	mΩ
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	1.2	---	2.3	V
Diode Forward Voltage	V_{SD}	I_S = 1A, V_{GS} = 0V	---	---	1.2	V
Continuous Source Current	I_S	V_{GS} = 0V, V_{DS}Open, f=1MHz	---	---	100	A

Dynamic (T_J=25℃ unless otherwise specified)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 30V, f = 1MHz	---	5471	---	pF
Output Capacitance	C_{oss}		---	1847	---	
Reverse Transfer Capacitance	C_{rss}		---	86	---	
Total Gate Charge	Q_g	V_{DS} = 30V, I_D = 20A, V_{GS} = 10V	---	102	---	nC
Gate-Source Charge	Q_{gs}		---	54.1	---	
Gate-Drain Charge	Q_{gd}		---	15.7	---	
Turn-on delay time	$T_{d(on)}$	V_{DD} = 30V, I_D = 20A, V_{GS} = 10V, R_G=3Ω	---	15	---	nS
Rise time	T_r		---	12	---	
Turn-off delay time	$T_{d(off)}$		---	60	---	
Fall time	T_f		---	19	---	

Typical Characteristics

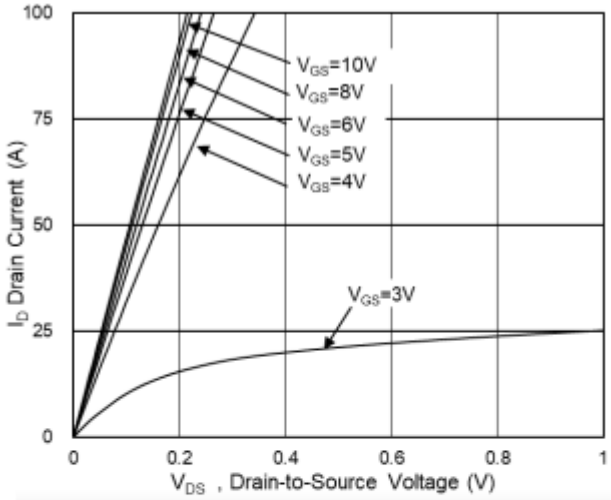


Fig.1 Typical Output Characteristics

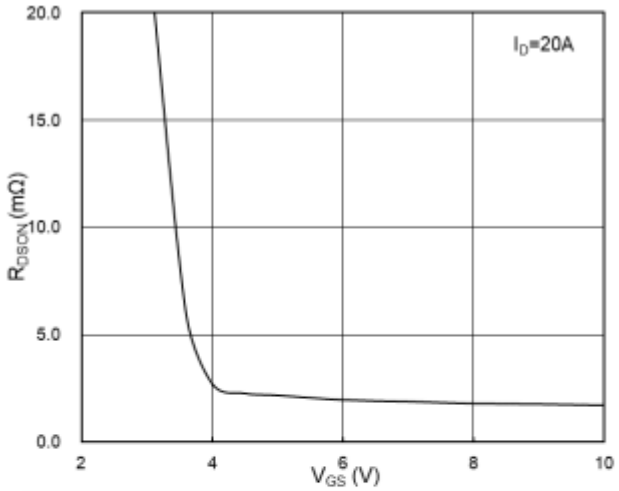


Fig.2 On-Resistance vs G-S Voltage

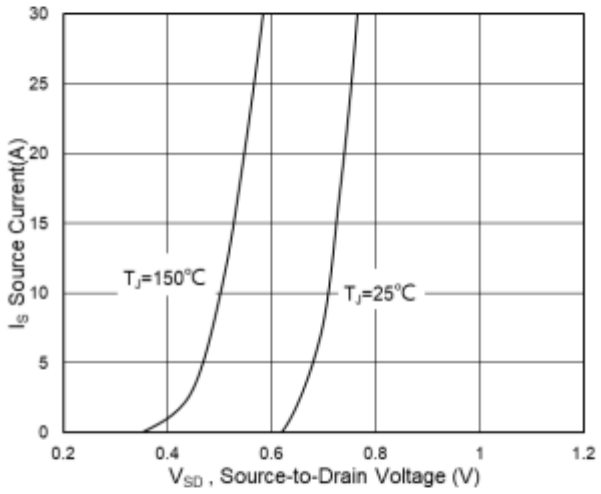


Fig.3 Diode Forward Voltage vs Current

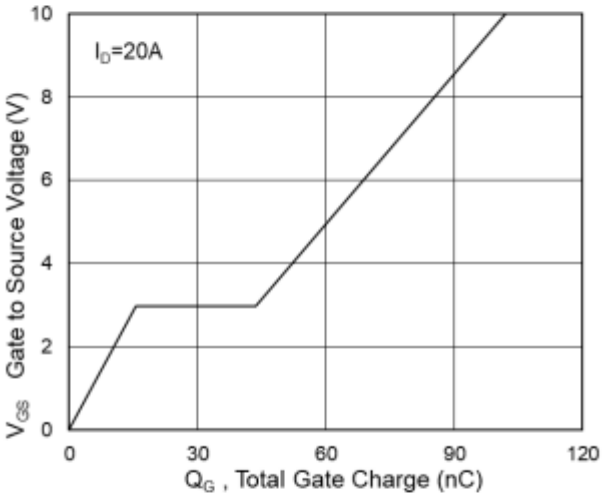


Fig.4 Gate-Charge Characteristics

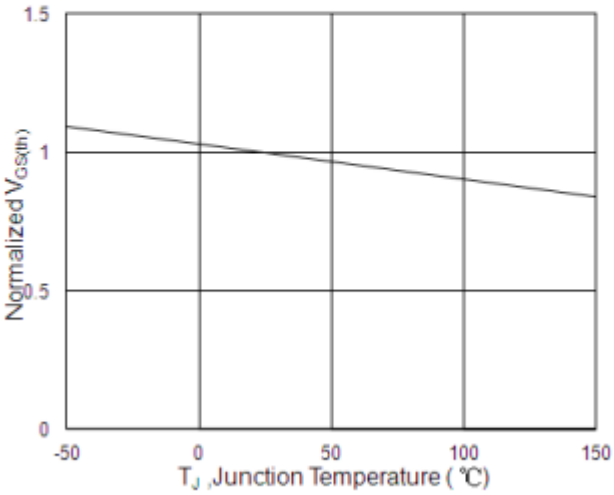


Fig.5 Normalized $V_{GS(th)}$ vs T_J

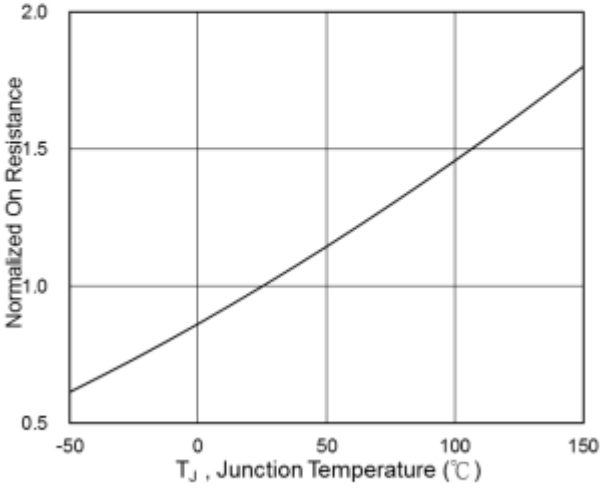


Fig.6 Normalized R_{DSON} vs T_J

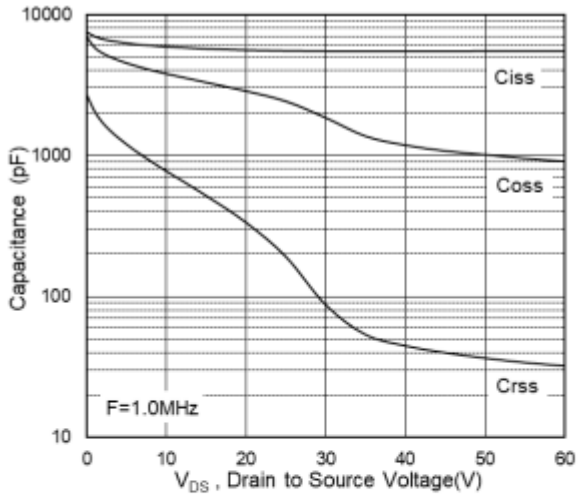


Fig.7 Capacitance

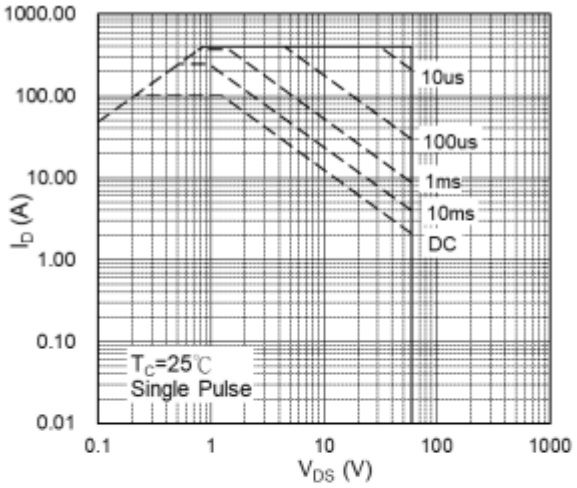


Fig.8 Safe Operating Area

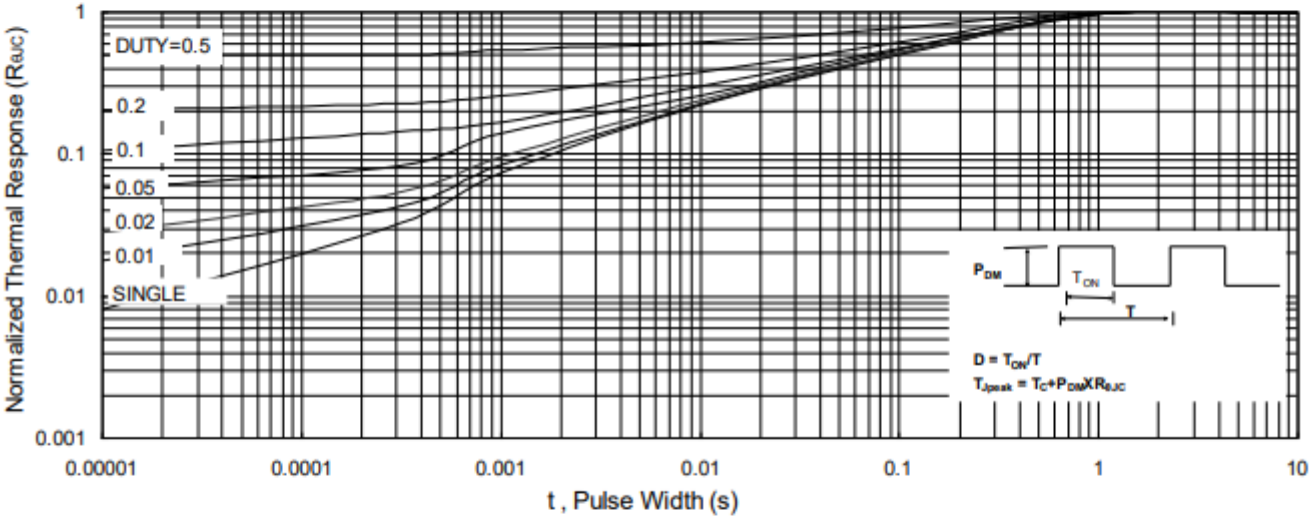


Fig.9 Normalized Maximum Transient Thermal Impedance

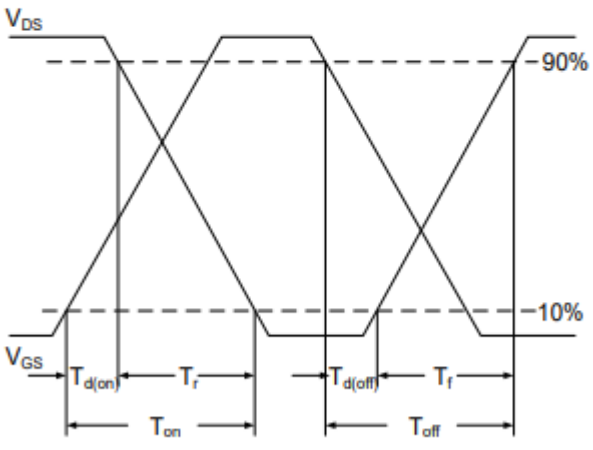


Fig.10 Switching Time Waveform

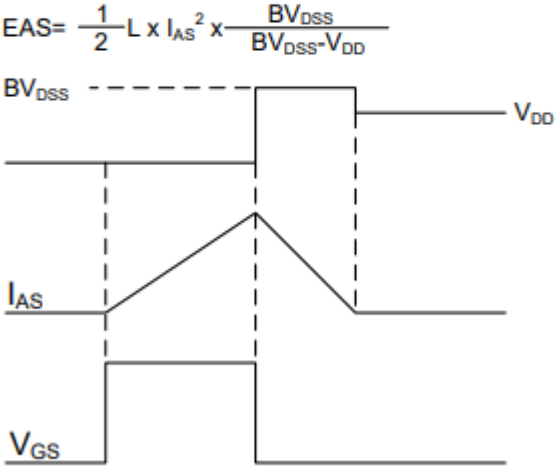
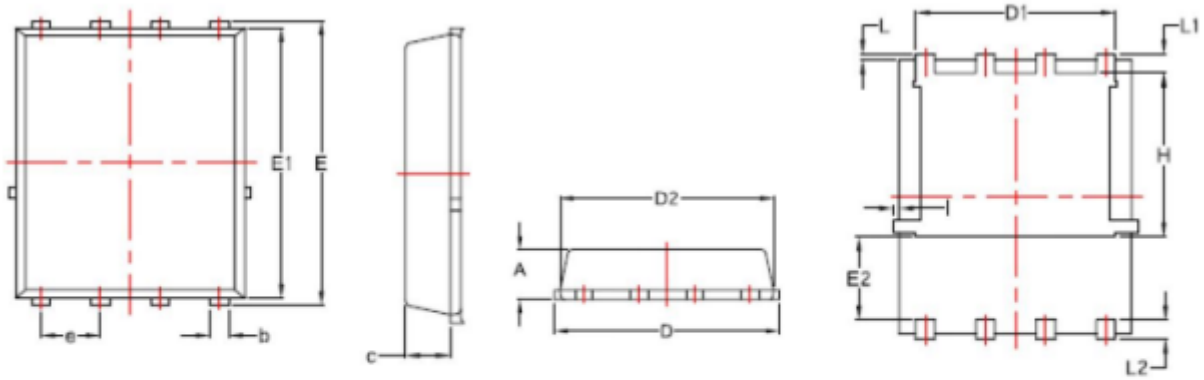


Fig.11 Unclamped Inductive Switching Waveform

PRPAK5x6 Package Outline



SYMBOL	MIN	NOM	MAX
A	0.90	----	1.20
b	0.30	----	0.51
c	0.60	----	1.046
D	4.80	----	5.45
D1	4.11	----	4.31
D2	4.80	----	5.20
E	5.90	----	6.35
E1	5.65	----	6.06
E2	1.10	----	----
e	1.27 BSC		
L	0.05	----	0.25
L1	0.38	----	0.61
L2	0.30	----	0.71
H	3.30	----	3.92
I	----	----	0.18

Unit: mm

Land Pattern (Only for Reference)

Unit: mm