

Features

- Split Gate Trench Mosfet Technology
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note 2) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

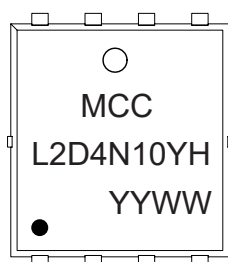
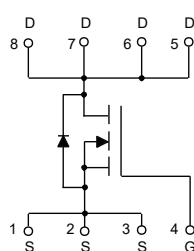
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 44°C/W Junction to Ambient (Note 3)
- Thermal Resistance: 0.32°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$T_C=25^{\circ}\text{C}$	312	A
	$T_C=100^{\circ}\text{C}$	221	
Pulsed Drain Current (Note 4)	I_{DM}	1248	A
Total Power Dissipation (Note 5)	P_D	468	W
Avalanche Energy (Note 6)	E_{AS}	1000	mJ

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7(a)-I.
3. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.
4. Repetitive rating; pulse width limited by max. junction temperature.
5. P_D is based on max. junction temperature, using junction-case thermal resistance.
6. $T_J=25^{\circ}\text{C}$, $V_{DD}=50\text{V}$, $V_{GS}=10\text{V}$, $R_G=25\Omega$, $L = 1.0\text{mH}$.

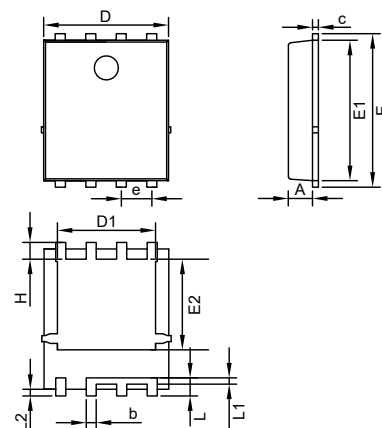
Internal Structure and Marking Code



4 codes in total
YY is the year
WW is the week

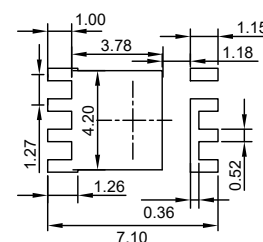
N-CHANNEL MOSFET

PDFN5060-CW



DIM	INCH		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.035	0.044	0.90	1.10	
b	0.012	0.021	0.32	0.52	
c	0.008	0.014	0.21	0.34	
D	0.198	0.213	5.05	5.40	
D1	0.157	0.166	4.00	4.20	
E	0.248	0.256	6.30	6.50	
E1	0.226	0.235	5.75	5.95	
E2	0.140	0.149	3.58	3.78	
e	0.050		1.27		TYP
H	0.023	0.032	0.60	0.80	
L	0.025	0.034	0.65	0.85	
L1	0.006	0.015	0.16	0.36	
L2	0.007	0.014	0.20	0.35	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	3.0	4.0	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		1.9	2.4	mΩ
Gate Resistance	R _g	f=1MHz, Open Drain		2.3		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				312	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =2A			1.2	V
Reverse Recovery Time	t _{rr}	I _F =20A, dI _F /dt=100A/μs		64		ns
Reverse Recovery Charge	Q _{rr}			102		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =50V,V _{GS} =0V,f=1MHz		4894		pF
Output Capacitance	C _{oss}			1785		
Reverse Transfer Capacitance	C _{rss}			32		
Total Gate Charge	Q _g	V _{DS} =50V,V _{GS} =10V,I _D =20A		74		nC
Gate-Source Charge	Q _{gs}			20		
Gate-Drain Charge	Q _{gd}			16		
Turn-On Delay Time	t _{d(on)}	V _{DD} =50V,V _{GS} =10V, R _G =3Ω, I _{DS} =20A		20		ns
Turn-On Rise Time	t _r			31		
Turn-Off Delay Time	t _{d(off)}			58		
Turn-Off Fall Time	t _f			35		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

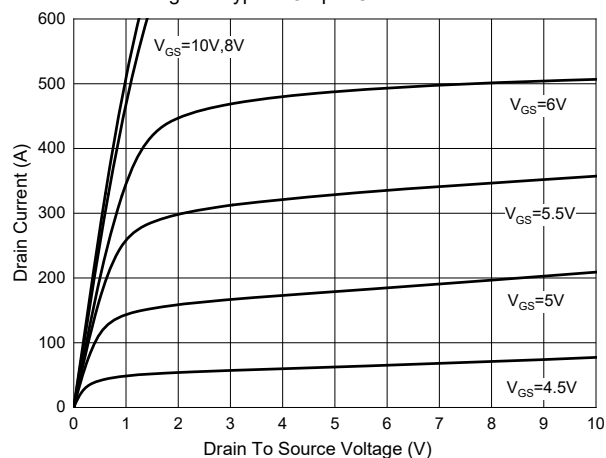


Fig. 2 - Transfer Characteristics

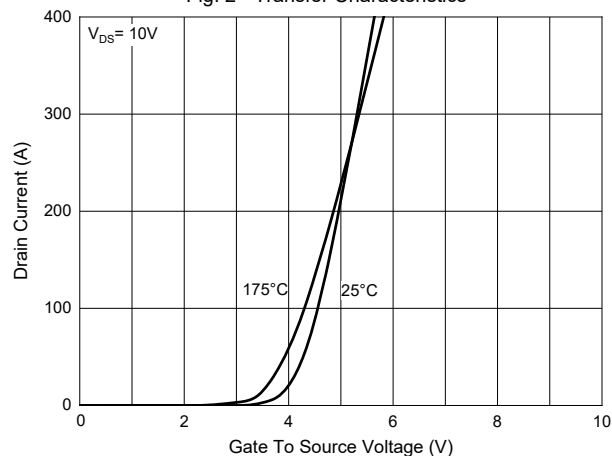


Fig.3- $R_{DS(ON)}$ - V_{GS}

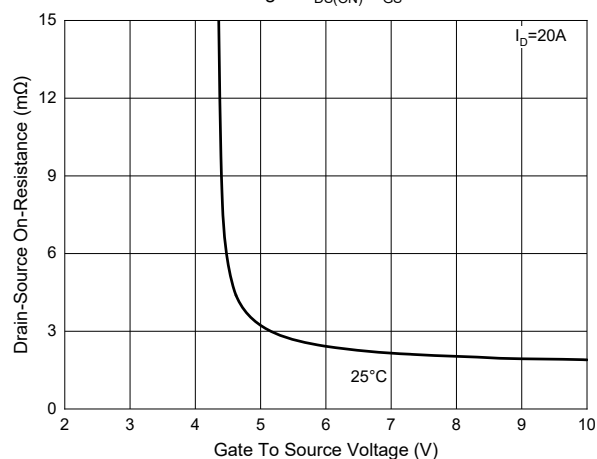


Fig.4- $R_{DS(ON)}$ - I_D

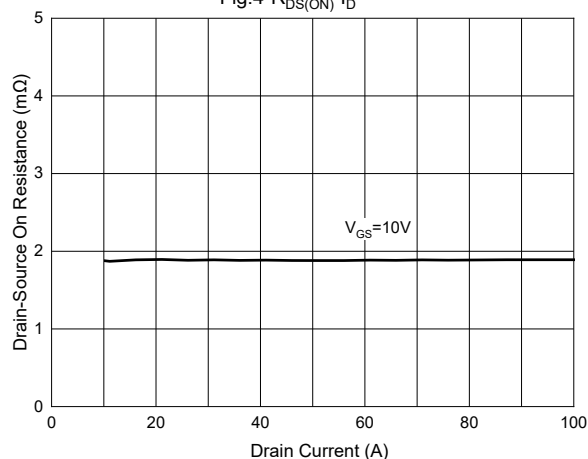


Fig. 5 - Capacitance Characteristics

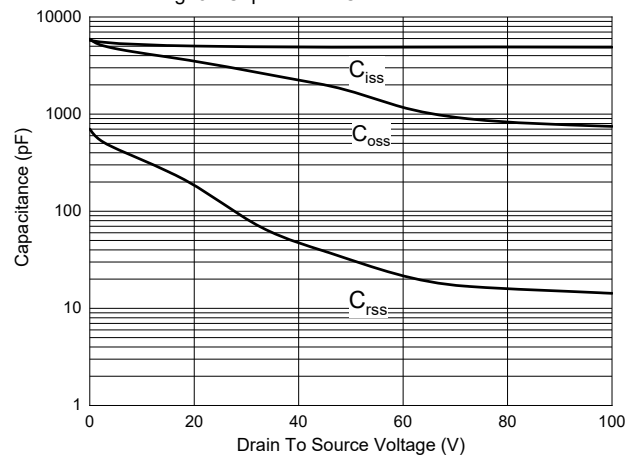
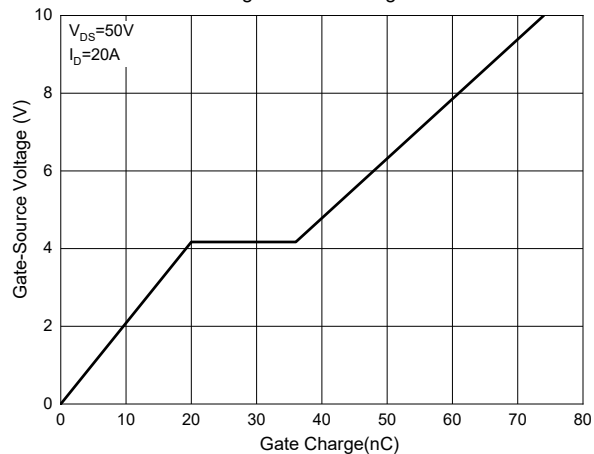


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

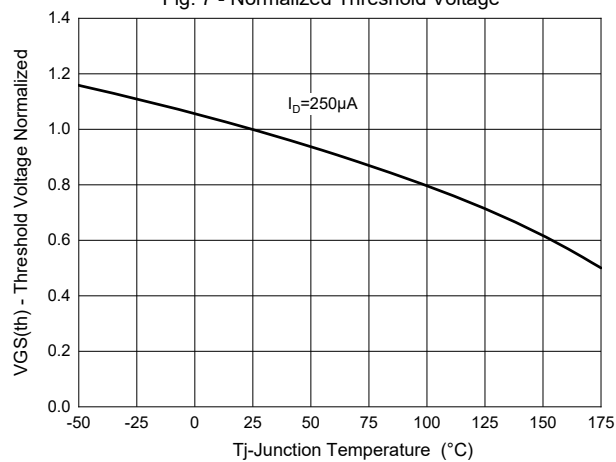


Fig. 8 - Normalized On Resistance Characteristics

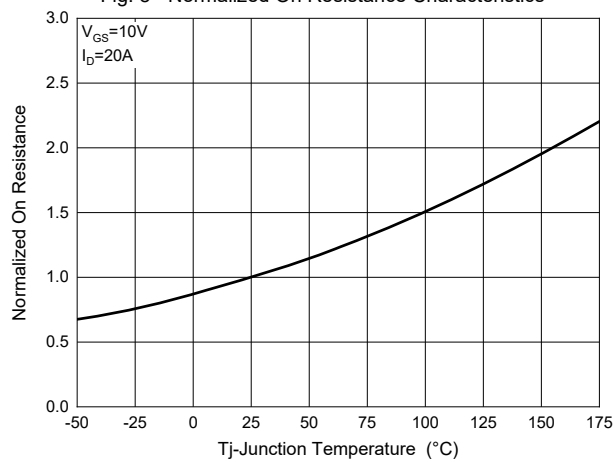


Fig.9- I_S - V_{SD}

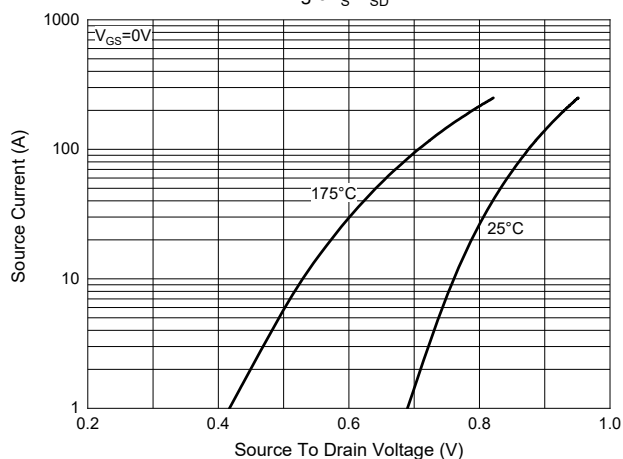


Fig. 10 - Drain Current

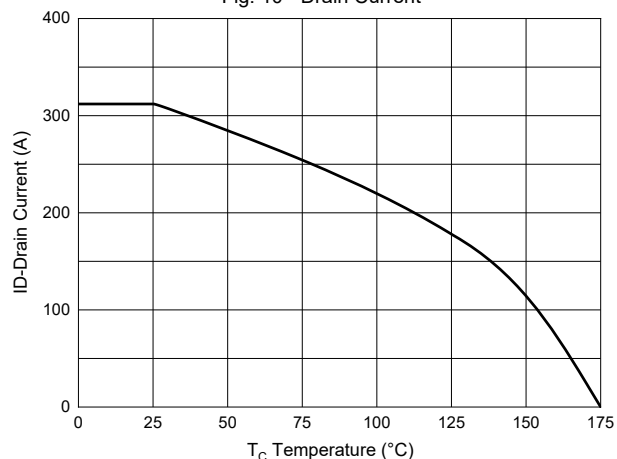
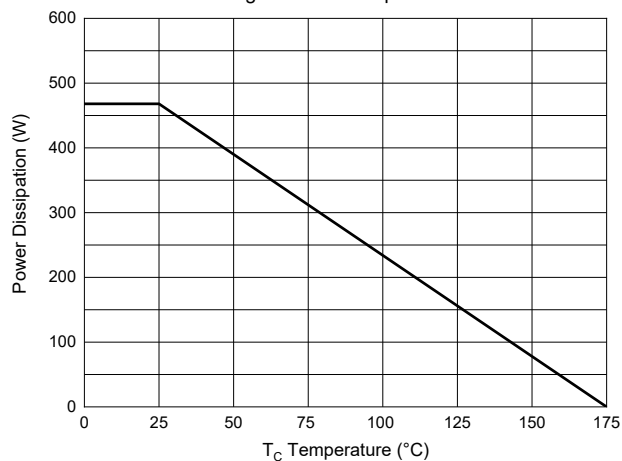


Fig. 11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

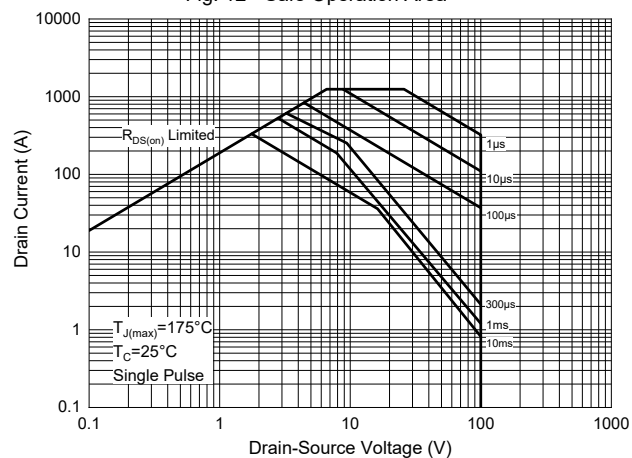
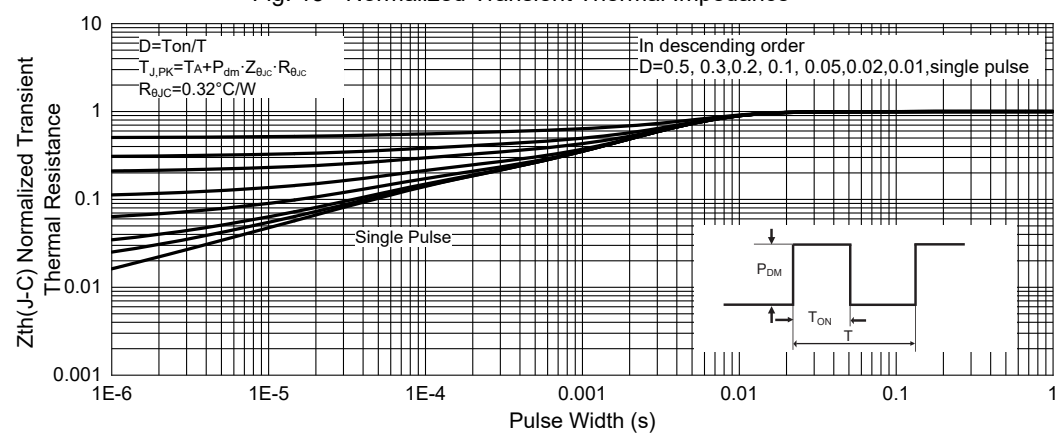


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 5Kpcs/Reel

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