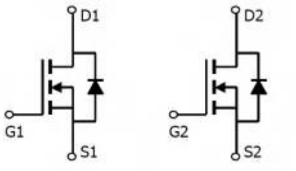
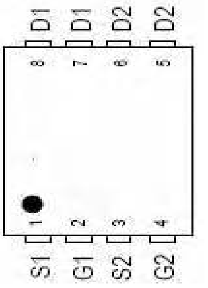
Dual N-Channel Enhancement Mosfet

Features

- 60V,30A
  $R_{DS(ON)}$ <30mΩ @V_{GS}=10V TYP:22mΩ
  $R_{DS(ON)}$ <42mΩ @V_{GS} = 4.5V TYP:29mΩ

- Advanced Trench Technology
- Lead free product is acquired
- Excellent $R_{DS(ON)}$ and Low Gate Charge





pin assignment

Applications

- Load Switch
- PWM Application
- Power Management
- Halogen-free

Package Marking and Ordering Information

Device Marking	Device	Package	Packaging Code	Reel Size	Quantity(Pcs)	Carton(Pcs)
D30N60	RMD30N60D3	DFN3X3	-W	13inch	5000	80000

ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃)	I_D	30	A
Continuous Drain Current (Tc=100℃)	I_D	20	A
Pulsed Drain Current (1)	I_{DM}	120	A
Drain Power Dissipation	P_D	35	W
Single Pulsed Avalanche Energy (2)	E_{AS}	23	mJ
Thermal Resistance from Junction to Case	$R_{\theta JC}$	3.6	℃/W
Junction Temperature	T_J	-55~ +150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Notes:

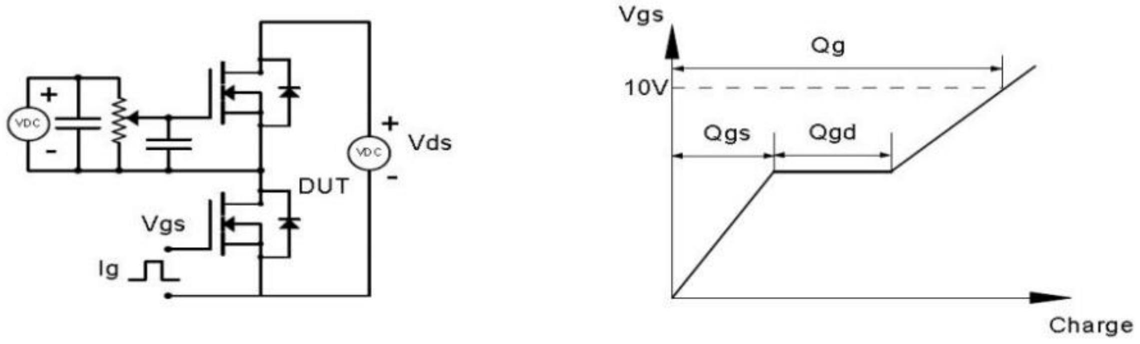
1) Repetitive Rating: pulse width limited by maximum junction temperature
2) EAS condition : T_J=25℃, V_{DD}=30V, V_{GS}=10V, L=0.5mH, R_g=25Ω, I_{AS}=9.6A

MOSFET ELECTRICAL CHARACTERISTICS(T_J=25℃ unless otherwise noted)

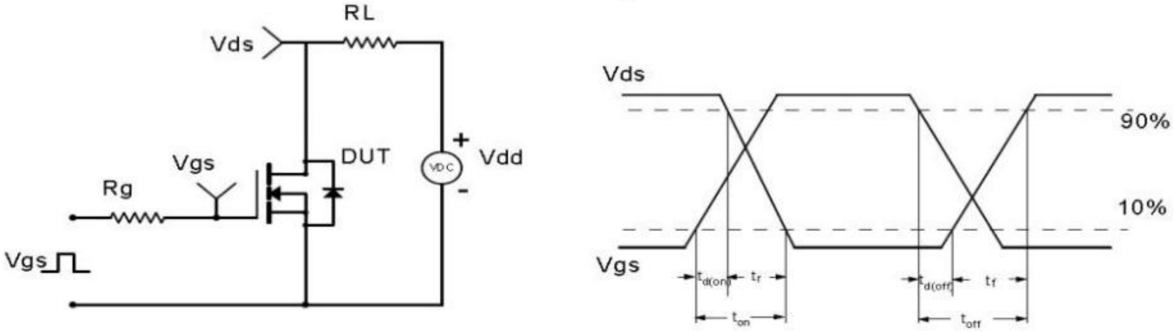
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =60V, V_{GS} = 0V	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.6	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =15A	-	22	30	mΩ
		V_{GS} =4.5V, I_D =10A	-	29	42	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =30V, VGS=0V, f=1MHz	-	1488	-	pF
Output Capacitance	C_{oss}		-	72	-	
Reverse Transfer Capacitance	C_{rss}		-	64	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=30V, I_D=15A, R_G=1.8Ω, V_{GS}=10V	-	7.5	-	nS
Turn-on rise time	t_r		-	21	-	
Turn-off delay time	$t_{d(off)}$		-	16	-	
Turn-off fall time	t_f		-	23.5	-	
Total Gate Charge	Qg	V_{DS}=30V, I_D=15A, V_{GS}=10V	-	25	-	nC
Gate-Source Charge	Qgs		-	4.5	-	
Gate-Drain Charge	Qgd		-	6.5	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=15A	-	0.8	1.2	V
Diode Forward current	I_S	T_C=25℃	-	-	30	A
Body Diode Reverse Recovery Time	trr	T_J=25℃, I_F=15A,di/dt=100A/us	-	29	-	nS
Body Diode Reverse Recovery Charge	Qrr		-	45	-	nC

Test Circuit & Waveform

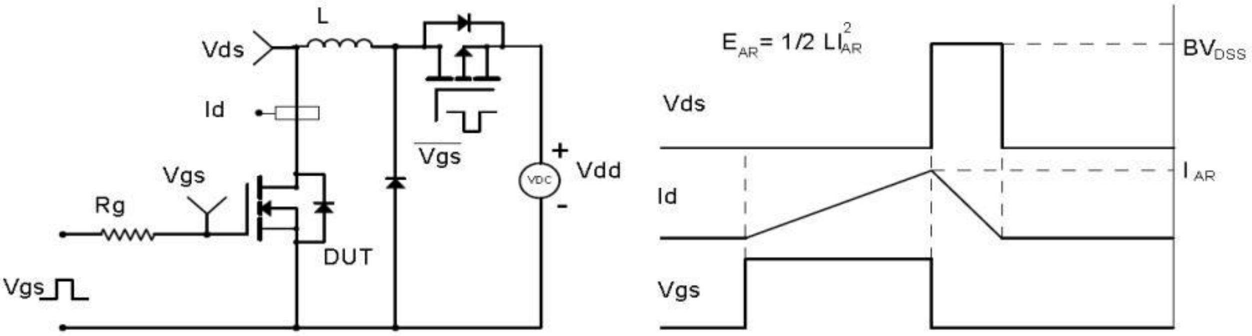
Gate Charge Test Circuit & Waveform



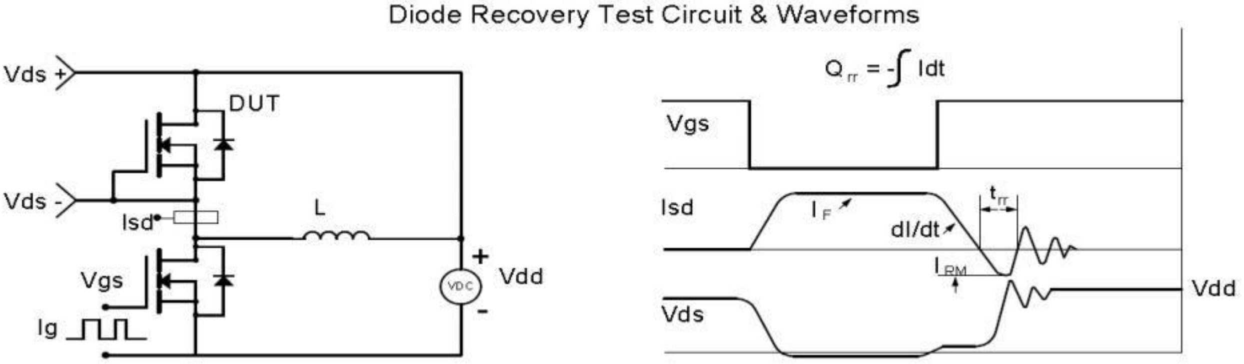
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



RATING AND CHARACTERISTICS CURVES (RMD30N60D3)

Figure1: Output Characteristics

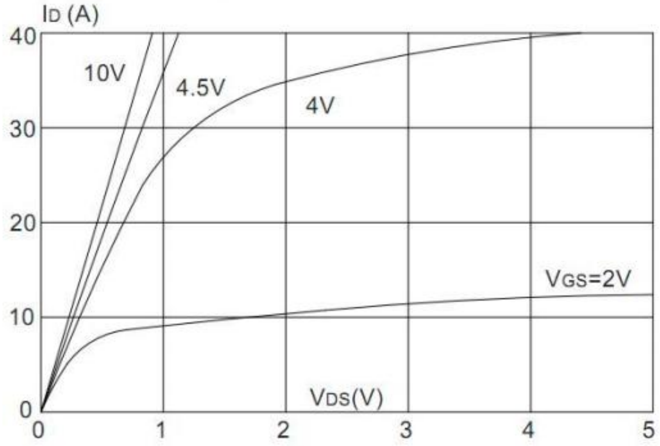


Figure 2: Typical Transfer Characteristics

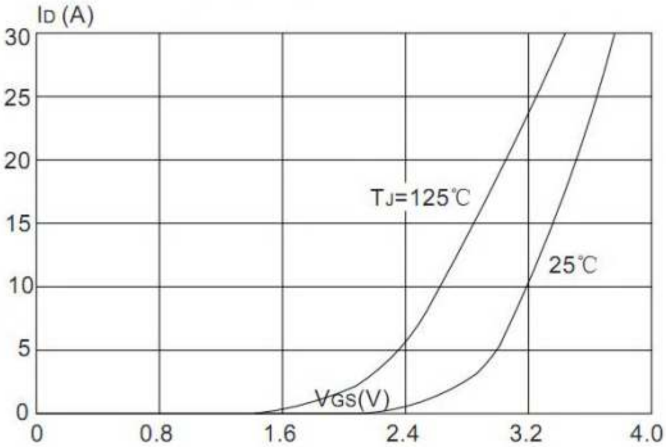


Figure 3: Maximum Continuous Drain Current vs. Case Temperature

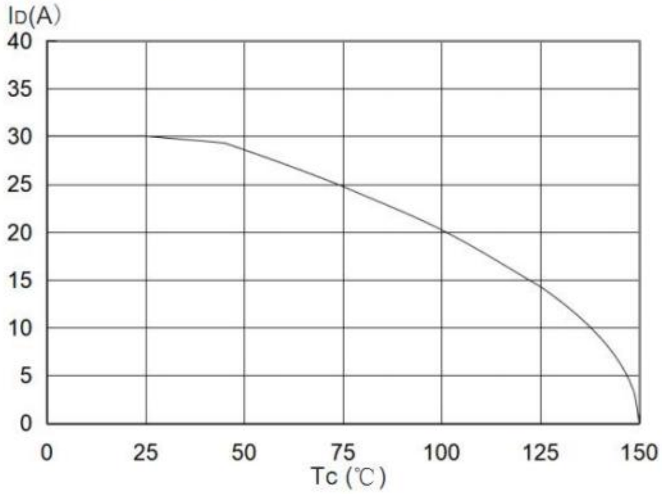


Figure 4: Body Diode Characteristics

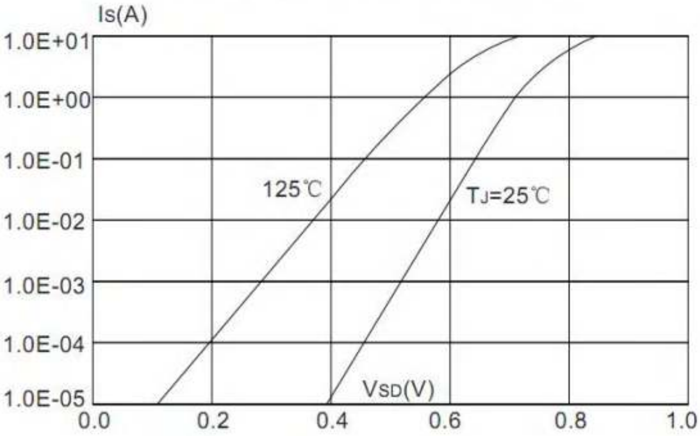


Figure 5: On-resistance vs. Drain Current

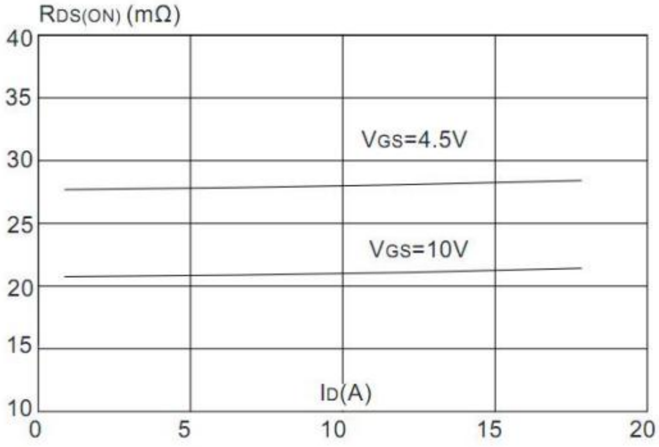
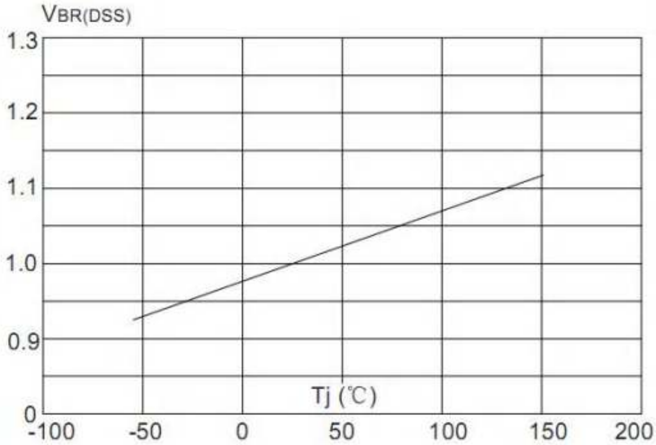


Figure 6: Normalized Breakdown Voltage vs. Junction Temperature



RATING AND CHARACTERISTICS CURVES (RMD30N60D3)

Figure 7: Normalized on Resistance vs. Junction Temperature

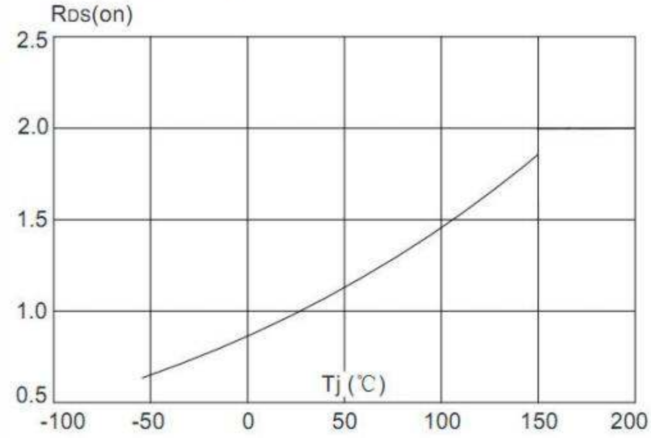


Figure 8: Gate Charge Characteristics

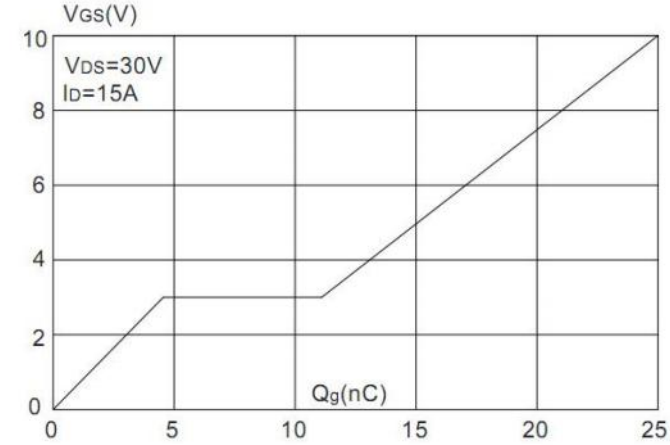


Figure 9: Capacitance Characteristics

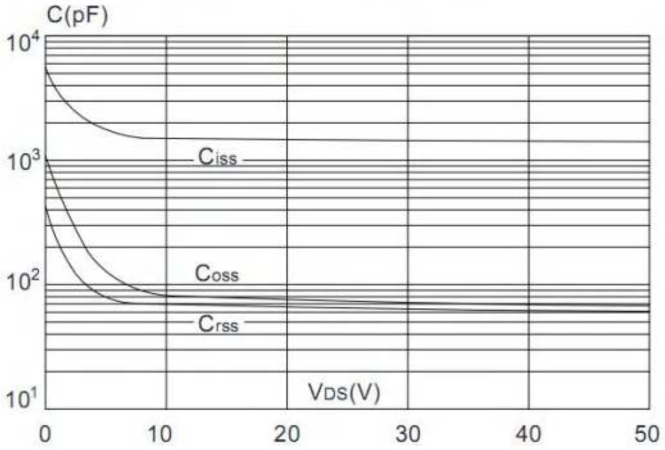


Figure 10: Maximum Safe Operating Area

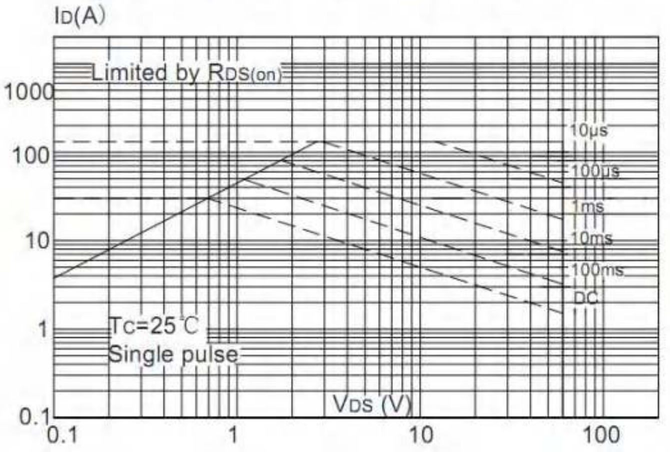
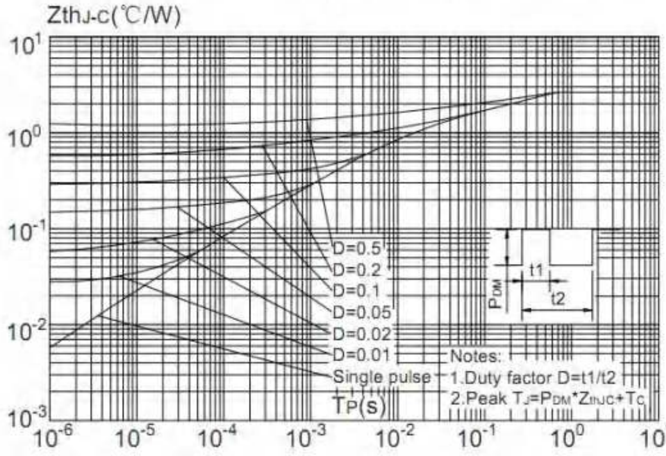
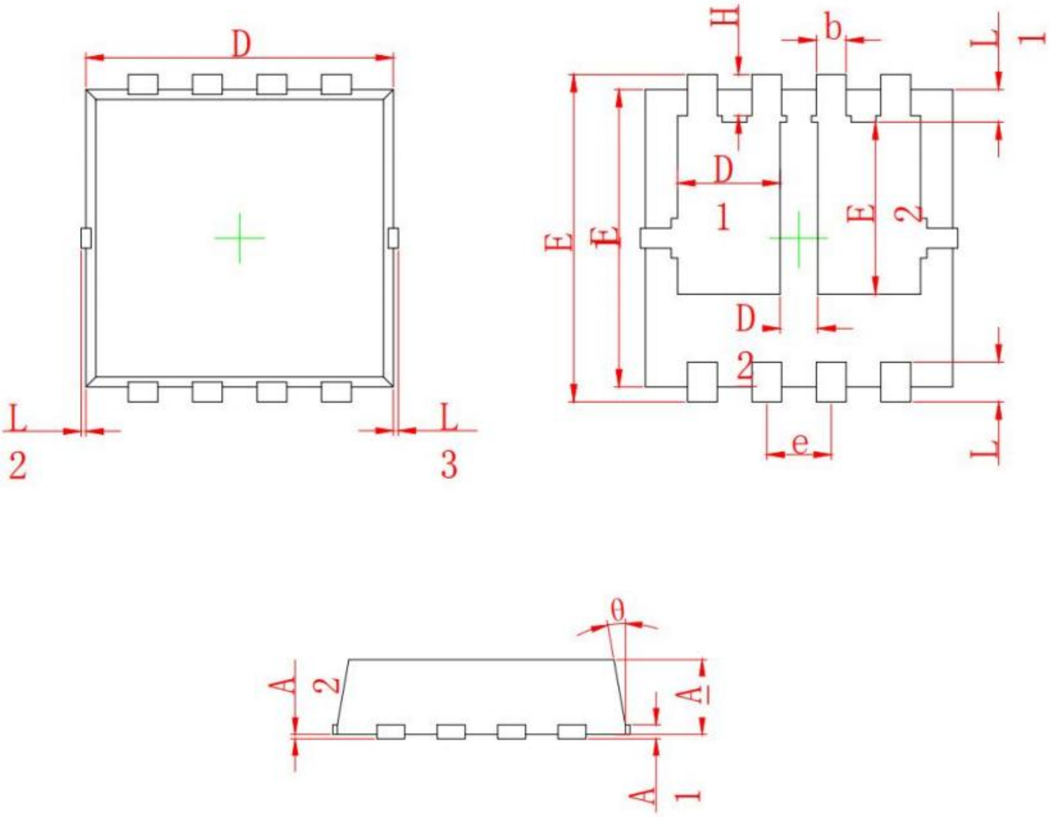


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



DFN3X3 Package Information



SYMBOL	MILLIMETER	
	MIN	MAX
A	0.700	0.900
A1	0.152 REF.	
A2	0~0.05	
D	3.000	3.200
D1	0.935	1.135
D2	0.280	0.480
E	2.900	3.100
E1	3.150	3.450
E2	1.535	1.935
b	0.200	0.400
e	0.550	0.750
L	0.300	0.500
L1	0.180	0.480
L2	0~0.100	
L3	0~0.100	
H	0.315	0.515
θ	8°	12°

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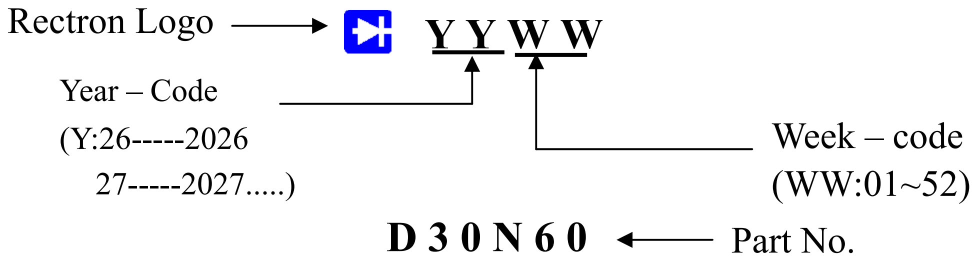
Marking on the body



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