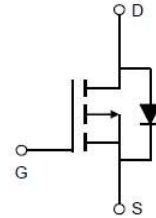


P-Channel Enhancement Mosfet

Features

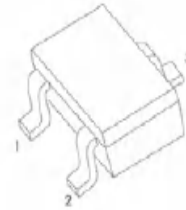
- -100V,-3A
 $R_{DS(ON)} < 370m\Omega @ V_{GS} = -10V$ TYP:285m Ω
 $R_{DS(ON)} < 405m\Omega @ V_{GS} = -4.5V$ TYP:305 m Ω
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handing capability
- Lead free product is acquired



Schematic diagram

Applications

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



SOT23-3L

Package Marking and Ordering Information

Device Marking	Device	Device Package	Packaging Code	Reel Size	Quantity (PCS)
3P10A	RM3P100Y	SOT23-3L	-T	7inch	3000

ABSOLUTE MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_a = 25^\circ\text{C}$)	I_D	-3	A
Continuous Drain Current ($T_a = 100^\circ\text{C}$)	I_D	-1.8	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	-12.0	A
Drain Power Dissipation	P_D	1.25	W
Avalanche energy ⁽²⁾	E_{AS}	12.5	mJ
Thermal Resistance- Junction to Ambient	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

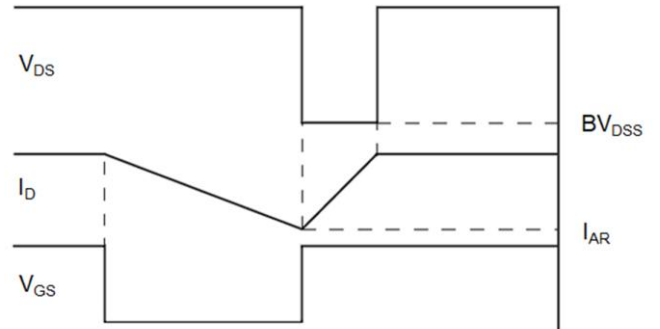
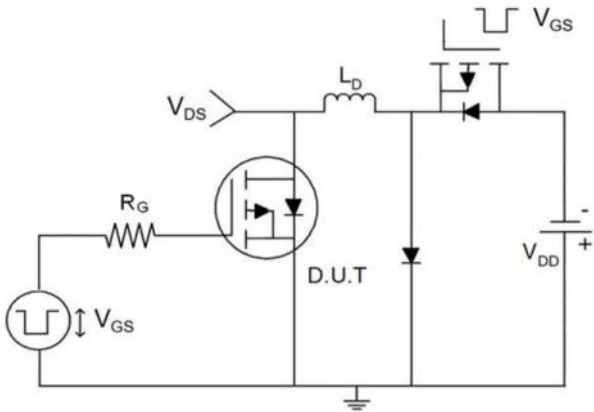
MOSFET ELECTRICAL CHARACTERISTICS($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-100	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -100V, V_{GS} = 0V$	-	-	-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -3A$	-	285	370	m Ω
		$V_{GS} = -4.5V, I_D = -3A$	-	305	405	m Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -50V, V_{GS} = 0V, f = 1.0MHz$	-	1199	-	pF
Output Capacitance	C_{oss}		-	34	-	
Reverse Transfer Capacitance	C_{rss}		-	28.2	-	
Gate resistance	R_G	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$	-	5.2	-	Ω
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -50V, I_D = -3A, R_G = 3\Omega,$ $V_{GS} = -10V, R_L = 16.6\Omega$	-	13.5	-	ns
Turn-on rise time	t_r		-	3.8	-	
Turn-off delay time	$t_{d(off)}$		-	42	-	
Turn-off fall time	t_f		-	6.4	-	
Total Gate Charge	Q_g	$V_{DS} = -50V,$ $I_D = -3A, V_{GS} = -10V$	-	19.6	-	nC
Gate-Source Charge	Q_{gs}		-	6	-	
Gate-Drain Charge	Q_{gd}		-	4.2	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	$T_c = 25^{\circ}\text{C}, V_{GS} = 0V, I_S = -3A$	-	-	-1.2	V
Diode Forward current	I_S	$T_c = 25^{\circ}\text{C}$	-	-	-3	A
Body Diode Reverse Recovery Time	t_{rr}	$T_c = 25^{\circ}\text{C}, I_F = -3A, di/dt = 100A/us$		42.9		ns
Body Diode Reverse Recovery Charge	Q_{rr}	$T_c = 25^{\circ}\text{C}, I_F = -3A, di/dt = 100A/us$		83.7		uc

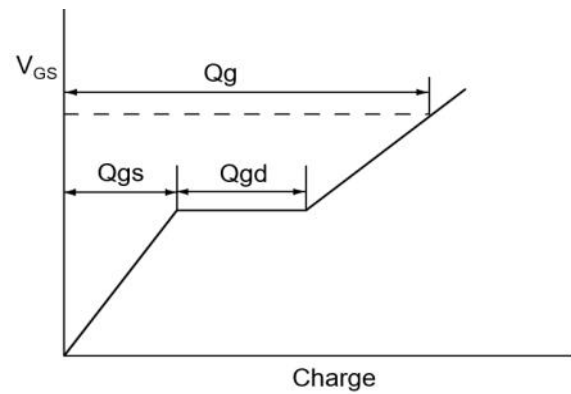
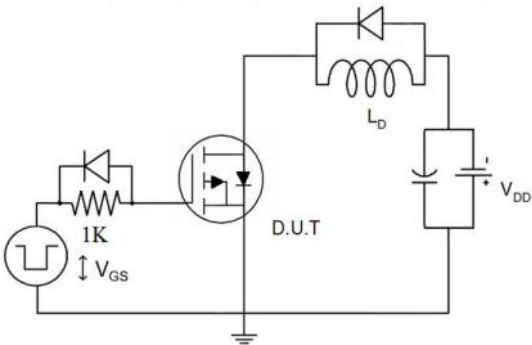
Notes:

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2.EAS condition: $T_J=25^{\circ}\text{C}, V_{DD}=-50V, V_G=-10V, R_G=25\Omega, L=0.5mH$.

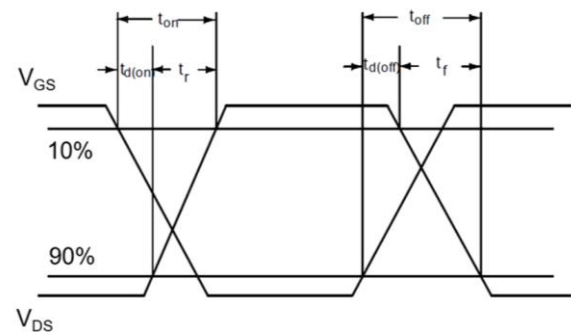
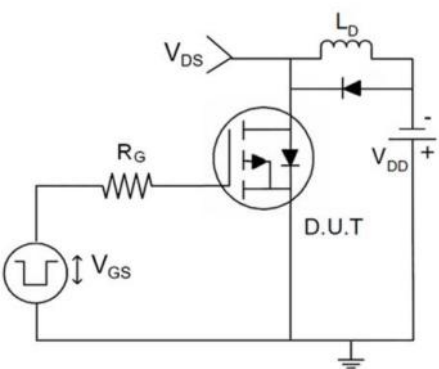
1) E_{AS} Test Circuits



2) Gate Charge Test Circuit



3) Switch Time Test Circuit



RATING AND CHARACTERISTICS CURVES (RM3P100Y)

Figure 1. Output Characteristics

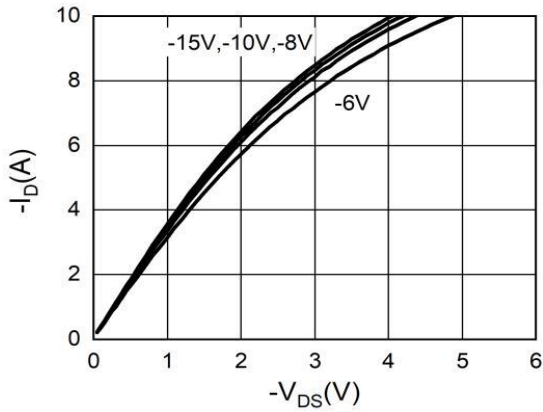


Figure 2. Transfer Characteristics

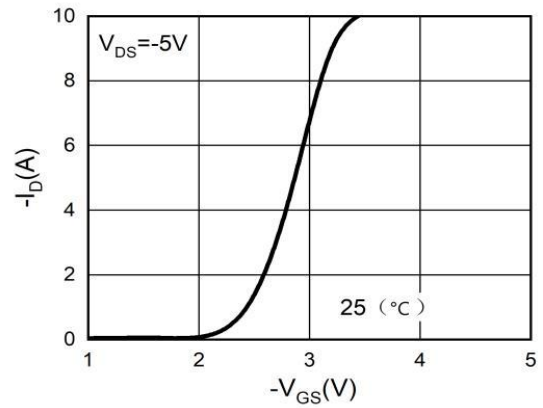


Figure 3. Power Dissipation

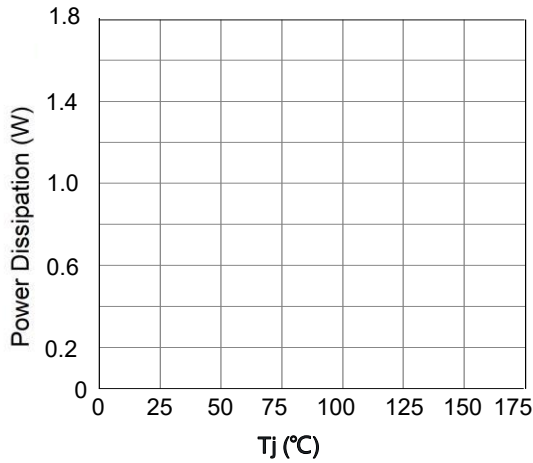


Figure 4. Drain Current

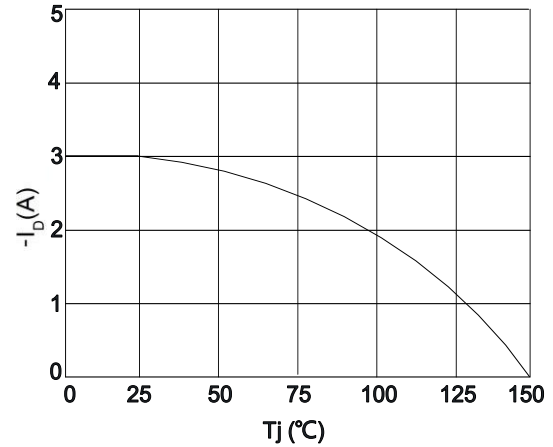


Figure 5. BV_{DSS} vs Junction Temperature

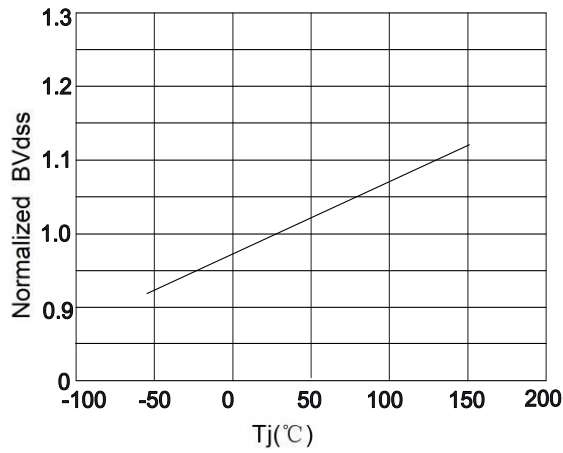
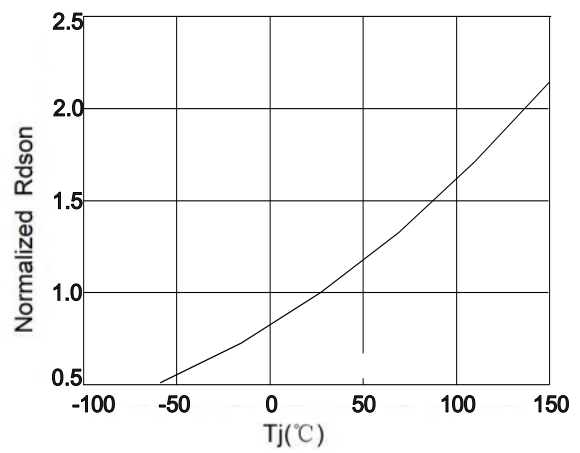


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



RATING AND CHARACTERISTICS CURVES (RM3P100Y)

Figure 7. Gate Charge Waveforms

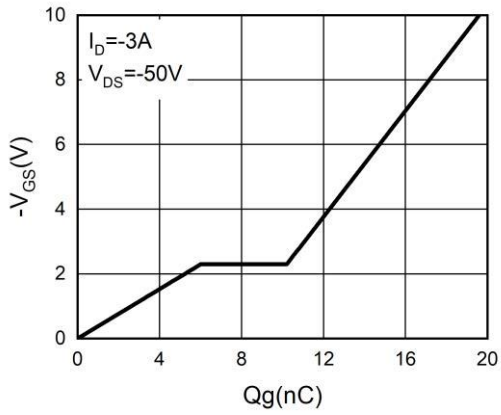


Figure 8. Capacitance

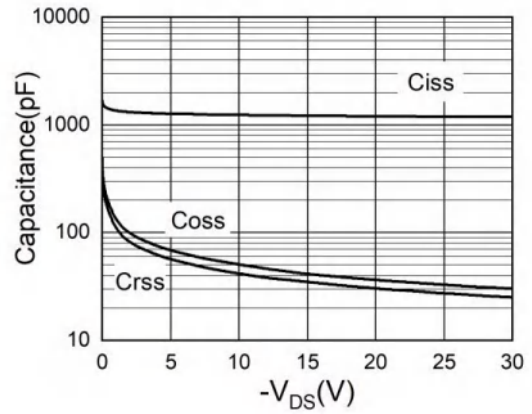


Figure 9. Body-Diode Characteristics

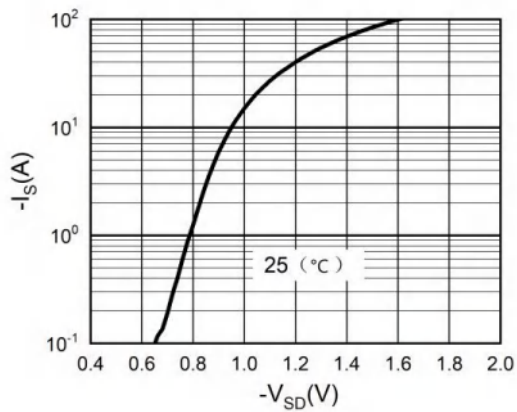
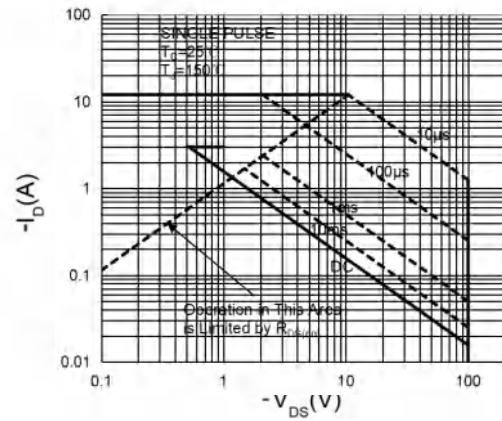
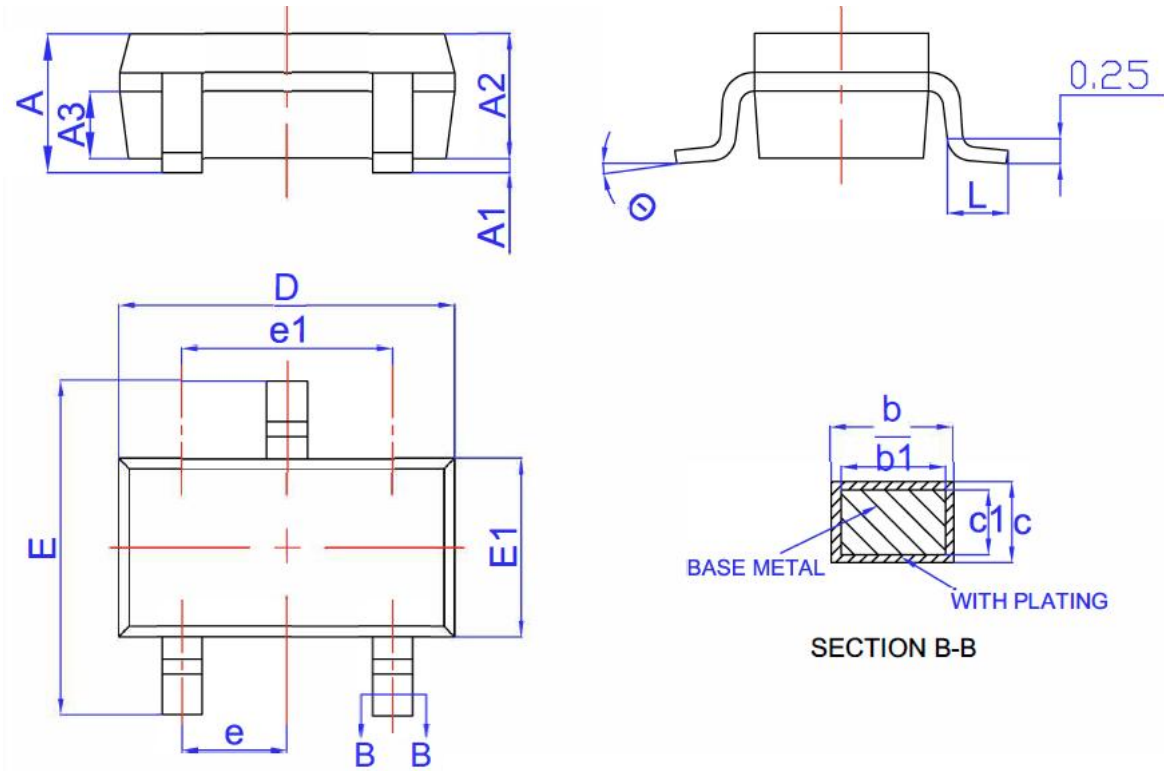


Figure 10. Maximum Safe Operating Area



Package Information SOT23-3L



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.25
A1	0.04	—	0.10
A2	1.00	1.10	1.20
A3	0.55	0.65	0.75
b	0.38	—	0.48
b1	0.37	0.40	0.43
c	0.11	—	0.21
c1	0.10	0.13	0.16
D	2.72	2.92	3.12
E	2.60	2.80	3.00
E1	1.40	1.60	1.80
e	0.95BSC		
e1	1.90BSC		
L	0.30	—	0.60
Θ	0	—	8°

DISCLAIMER NOTICE

Rectron Inc reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. Rectron Inc or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on RECTRON data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. Rectron Inc does not assume any liability arising out of the application or use of any product or circuit.

Rectron products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of Rectron Inc. Customers using or selling Rectron components for use in such applications do so at their own risk and shall agree to fully indemnify Rectron Inc and its subsidiaries harmless against all claims, damages and expenditures.