

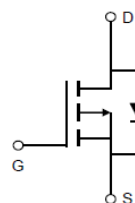
P-Channel Enhancement Mosfet

Features

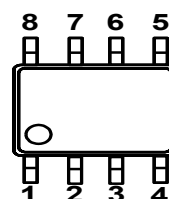
- -60V, -10A
 $R_{DS(ON)} < 32m\Omega @ V_{GS} = -10V$ TYP: 27m Ω
 $R_{DS(ON)} < 40m\Omega @ V_{GS} = -4.5V$ TYP: 32m Ω
- Advanced Trench Technology
- High Power and current handling capability
- Lead free product is acquired

Applications

- Load Switch
- DC/DC converter for LCD display
- Halogen-free



Schematic Diagram



SOP-8

Pin Assignment

Package Marking and Ordering Information

Device Marking	Device	Device Package	Packaging Code	Reel Size	Quantity(PCS)
10P60	RM10P60S8	SOP-8	-W	13inch	4000

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C = 25^\circ\text{C}$) ^(d)	I_D	-10	A
Continuous Drain Current ($T_C = 100^\circ\text{C}$)	I_D	-10	A
Pulsed Drain Current ^(a)	I_{DM}	-40	A
Single Pulsed Avalanche Energy ^(b)	E_{AS}	14	mJ
Drain Power Dissipation	P_D	28	W
Thermal Resistance from Junction to Case ^(a)	$R_{\theta JC}$	4.5	$^\circ\text{C/W}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	78	$^\circ\text{C/W}$
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 =-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	-1.0	-1.8	-2.5	V
Drain-source on-resistance ^(c)	R _{DS(on)}	V _{GS} =-10V, I _D =-5A	-	27	32	mΩ
		V _{GS} =-4.5V, I _D =-3A		32	42	mΩ
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, f =1.0MHz	-	4026	-	pF
Output Capacitance	C _{oss}		-	134	-	
Reverse Transfer Capacitance	C _{rss}		-	98	-	
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DS} =-30V, R _L =1.5Ω, R _G =3Ω, V _G =-10V	-	12.2	-	ns
Turn-on rise time	t _r		-	10	-	
Turn-off delay time	t _{d(off)}		-	64	-	
Turn-off fall time	t _f		-	14	-	
Total Gate Charge	Qg	V _{DS} =-30V,I _D =-5A V _{GS} =-10V	-	68	-	nC
Gate-Source Charge	Qgs		-	10.5	-	
Gate-Drain Charge	Qgd		-	13	-	
Source-Drain Diode characteristics						
Diode Forward voltage ^(a)	V _{SD}	T _J =25℃, V _{GS} =0V, I _S =-5A	-	-	-1.2	V
Diode Forward current	I _S	T _C =25℃	-	-	-10	A
Body Diode Reverse Recovery Time	t _{rr}	T _J =25℃, IF=-5A,di/dt=100A/us		26		ns
Body Diode Reverse Recovery Charge	Q _{rr}	T _J =25℃, IF=-5A,di/dt=100A/us		29		nc

Notes:

- Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- EAS condition: $T_J = 25^{\circ}\text{C}$, $V_{DD} = -40V$, $V_G = -10V$, $R_G = 25\Omega$, $L = 0.5mH$
- Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$
- Limited by bonding wire

RATING AND CHARACTERISTICS CURVES (RM10P60S8)

Figure 1. Output Characteristics

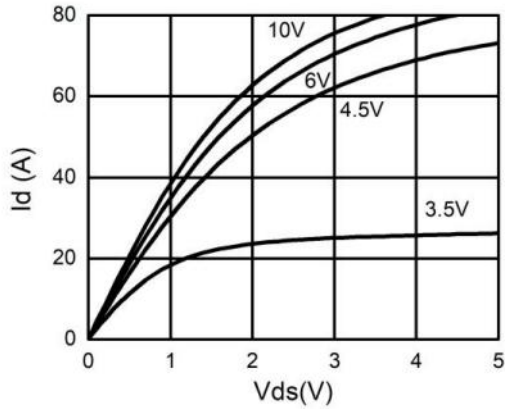


Figure 2. Transfer Characteristics

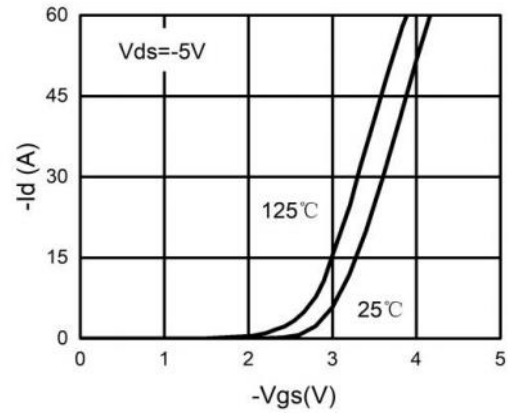


Figure 3. Power Dissipation

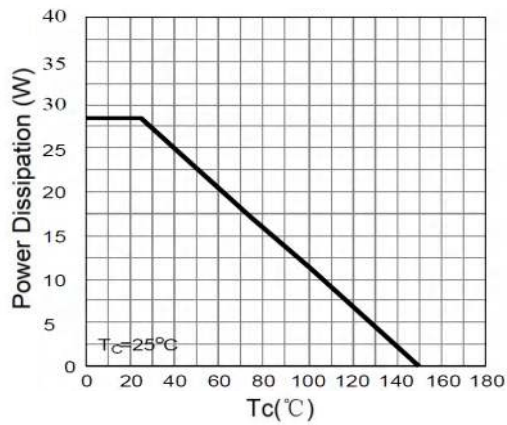


Figure 4. Drain Current

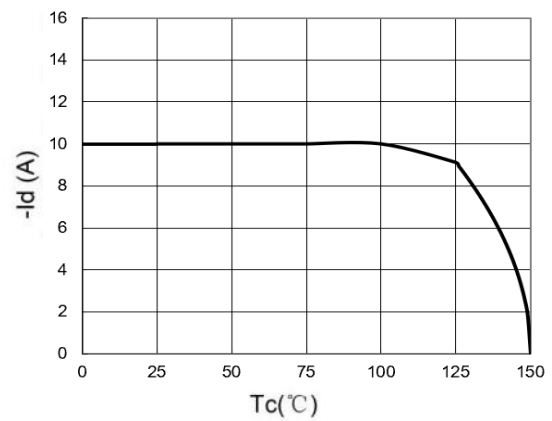


Figure 5. BV_{DSS} vs Junction Temperature

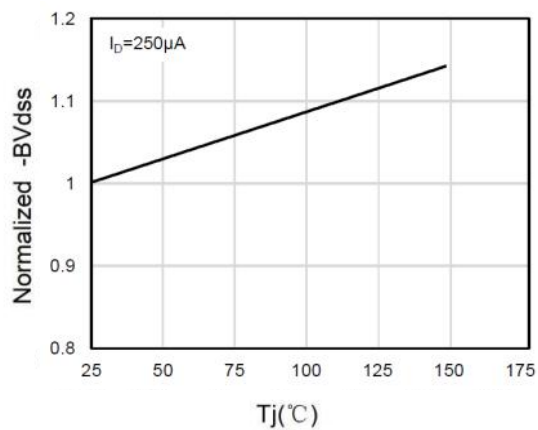
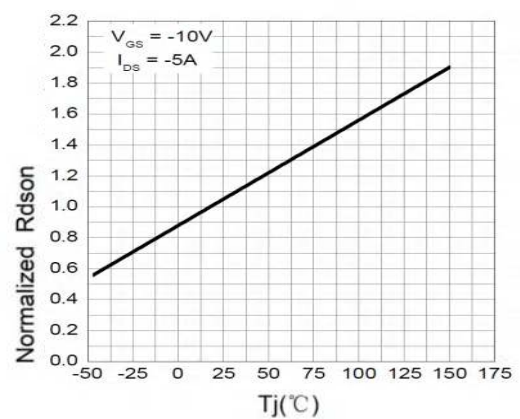


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



RATING AND CHARACTERISTICS CURVES (RM10P60S8)

Figure 7. Gate Charge Waveforms

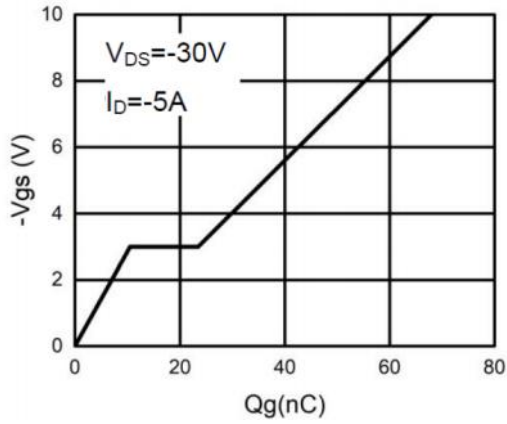


Figure 8. Capacitance

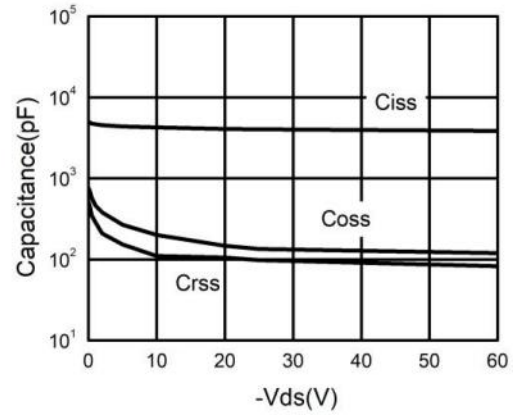


Figure 9. Body-Diode Characteristics

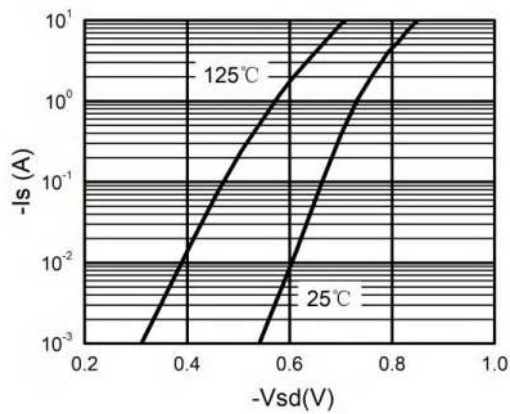
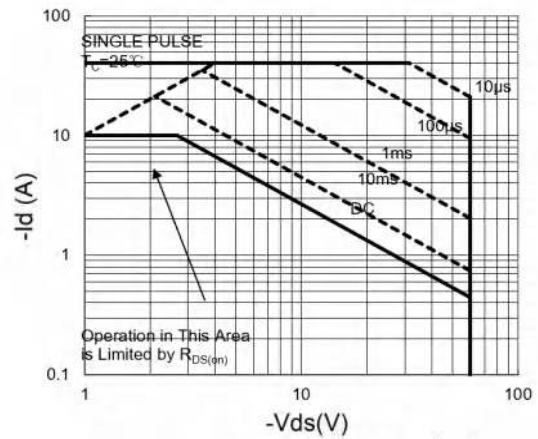
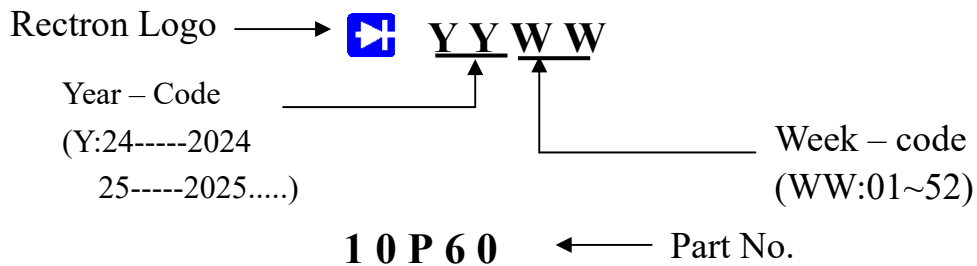


Figure 10. Maximum Safe Operating Area



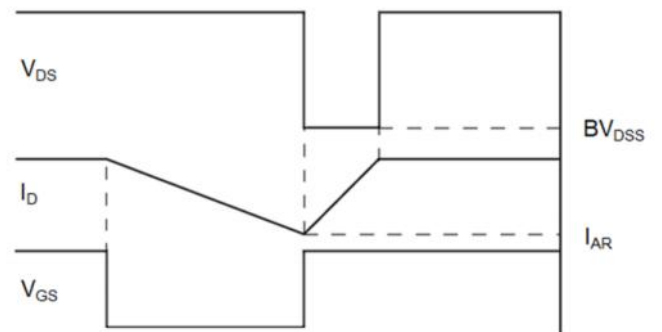
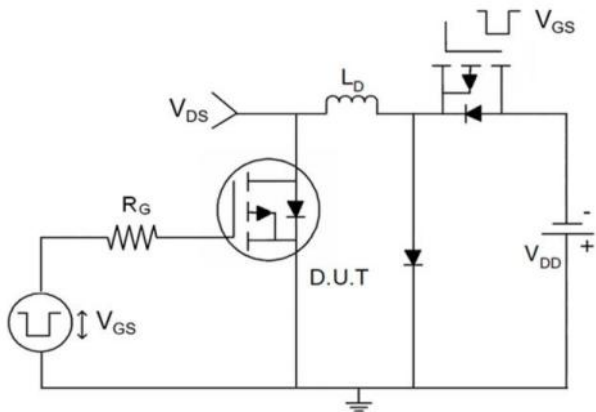
RECTRON

Marking on the body

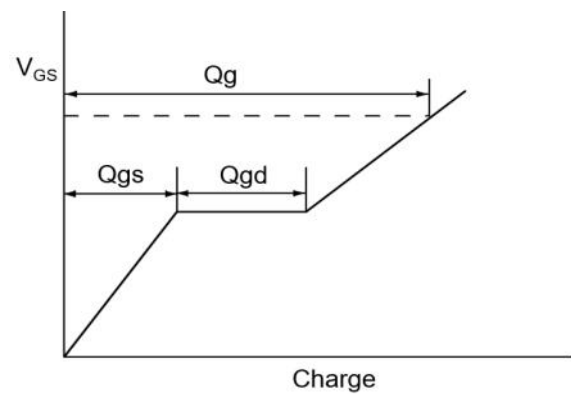
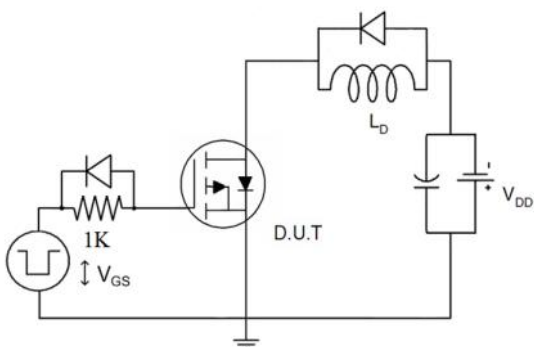


Test Circuit

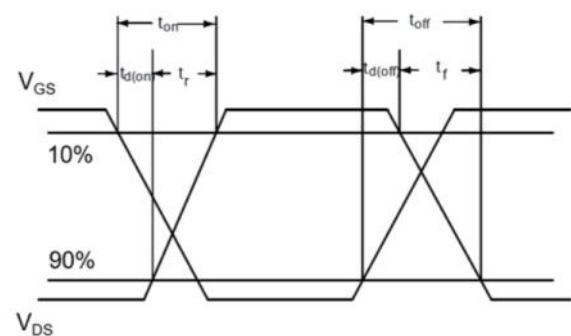
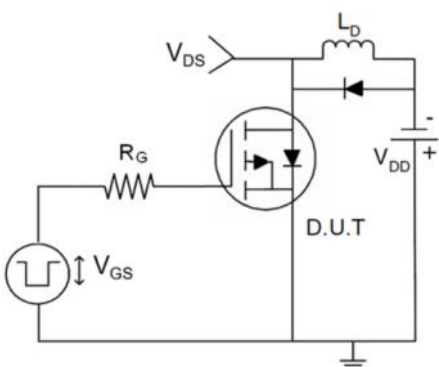
1) E_{AS} Test Circuits



2) Gate Charge Test Circuit



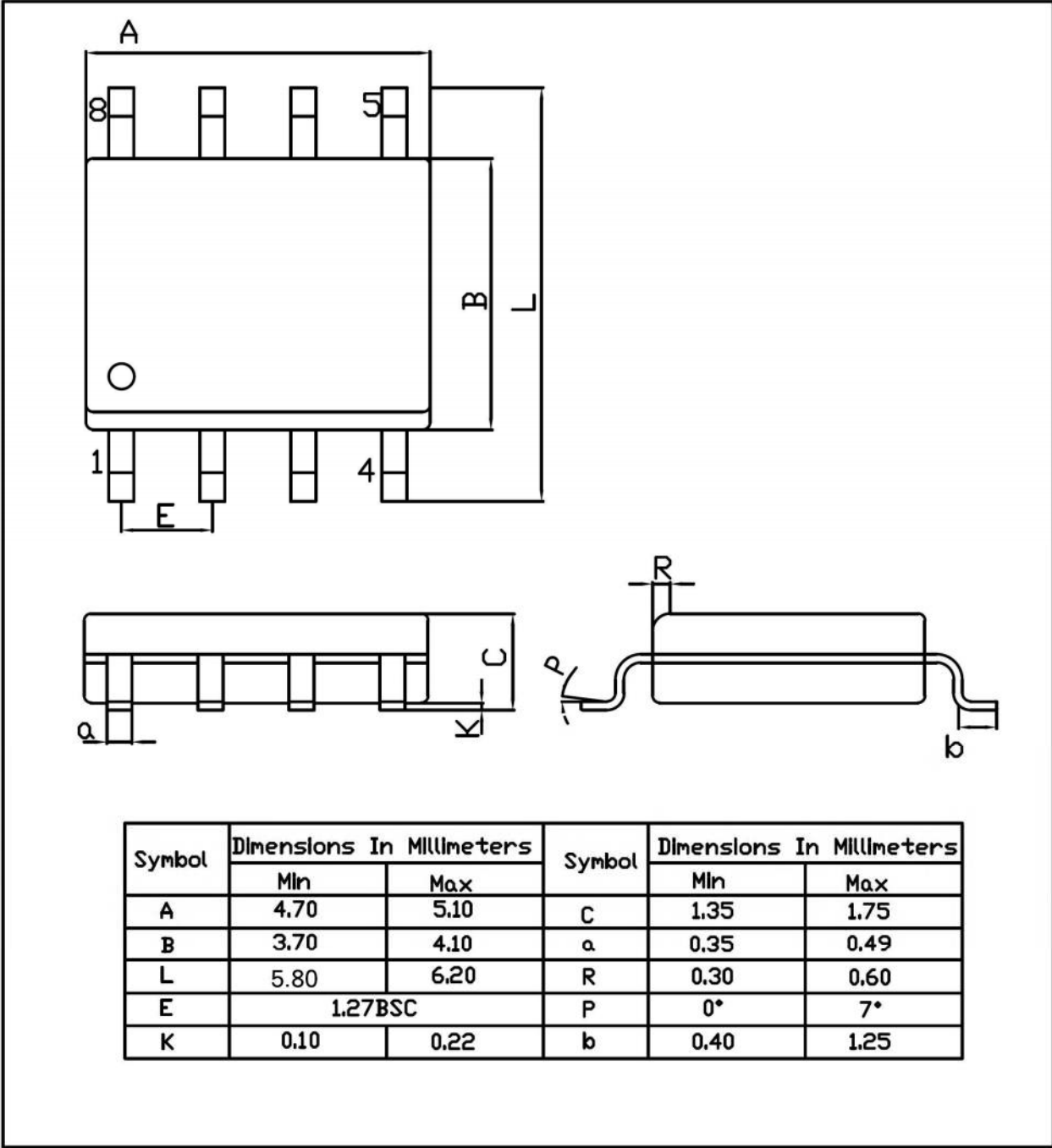
3) Switch Time Test Circuit



SOP-8 Package Information

SOP-8

Unit:mm



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