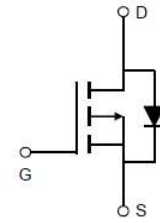


AP05P06Y

P-Channel Enhancement Mosfet

Features

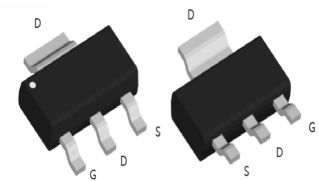
- -60V,-5A
 $R_{DS(ON)} < 90m\Omega @ V_{GS} = -10V$ TYP:80m Ω
 $R_{DS(ON)} < 120m\Omega @ V_{GS} = -4.5V$ TYP:105 m Ω
- Surface-mounted package
- Low gate charge



Schematic diagram

Applications

- Motor driver appliances
- Adapter appliances
- High power inverter system



SOT-223

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
05P06Y	AP05P06Y	SOT-223	-	-	2500

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_c = 25^\circ\text{C}$)	I_D	-5	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	-12.8	A
Drain Power Dissipation	P_D	1.56	W
Thermal Resistance from Junction to Case ⁽²⁾	$R_{\theta JC}$	2.5	$^\circ\text{C/W}$
Thermal Resistance- Junction to Ambient ⁽³⁾	$R_{\theta JA}$	80	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

Notes:

1. Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$
2. Mounted on PCB of 1 in2 pad area
3. Mounted on Large Heat Sink

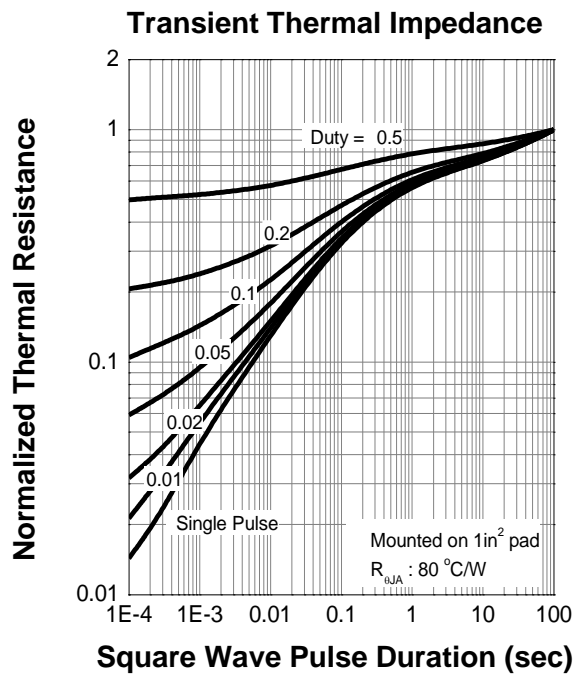
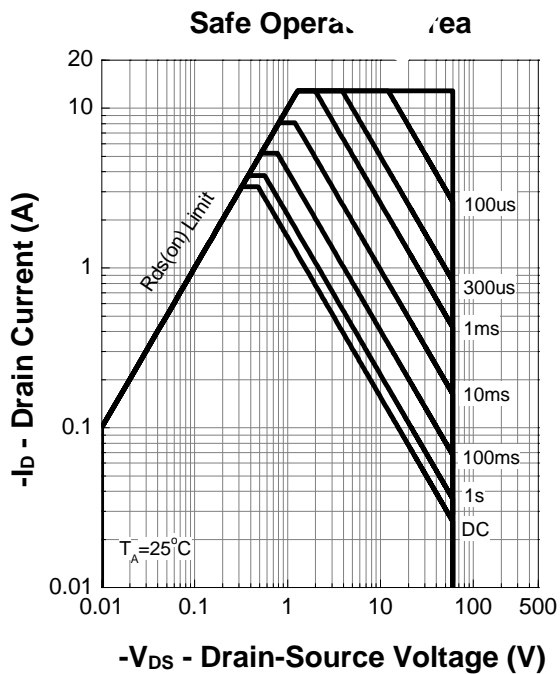
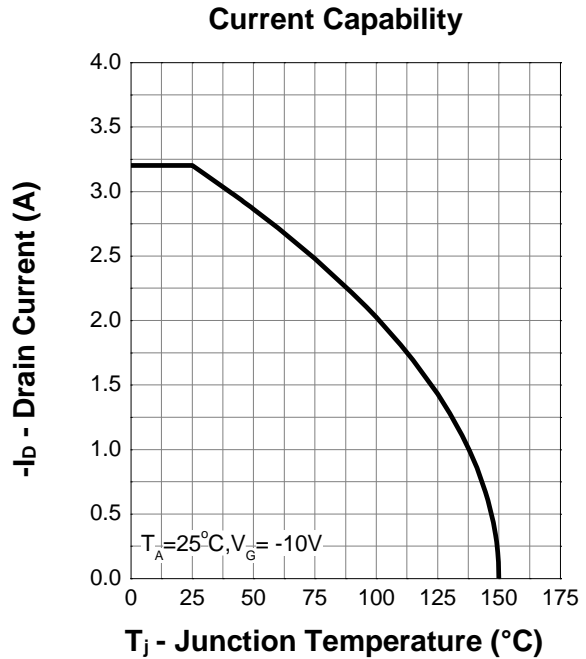
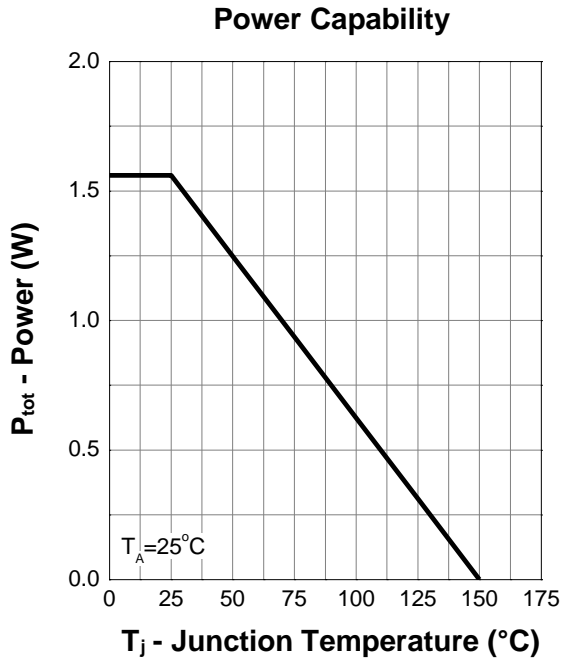
MOSFET ELECTRICAL CHARACTERISTICS($T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -48V, V_{GS} = 0V$	-	-	-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	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -2A$	-	80	90	m Ω
		$V_{GS} = -4.5V, I_D = -1A$	-	105	120	m Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS} = -30V, V_{GS} = 0V, f = 1.0MHz$	-	934	-	pF
Output Capacitance	C_{oss}		-	44	-	
Reverse Transfer Capacitance	C_{rss}		-	37	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -30V, I_D = -2A, R_G = 4.5\Omega,$ $V_{GS} = -10V, R_L = 15\Omega$	-	8.4	-	ns
Turn-on rise time	t_r		-	23	-	
Turn-off delay time	$t_{d(off)}$		-	109	-	
Turn-off fall time	t_f		-	48	-	
Total Gate Charge	Q_g	$V_{DS} = -30V, I_D = -2A,$ $V_{GS} = -10V$	-	16	-	nC
Gate-Source Charge	Q_{gs}		-	3.8	-	
Gate-Drain Charge	Q_{gd}		-	1.8	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	$T_c = 25^\circ\text{C}, V_{GS} = 0V, I_S = -2A$	-	-	-1.3	V
Diode Forward current	I_S	$T_c = 25^\circ\text{C}$	-	-	-5	A
Body Diode Reverse Recovery Time	t_{rr}	$T_c = 25^\circ\text{C}, I_F = -2A, di/dt = 100A/\mu s$		15		ns
Body Diode Reverse Recovery Charge	Q_{rr}	$T_c = 25^\circ\text{C}, I_F = -2A, di/dt = 100A/\mu s$		13		uc

Notes:

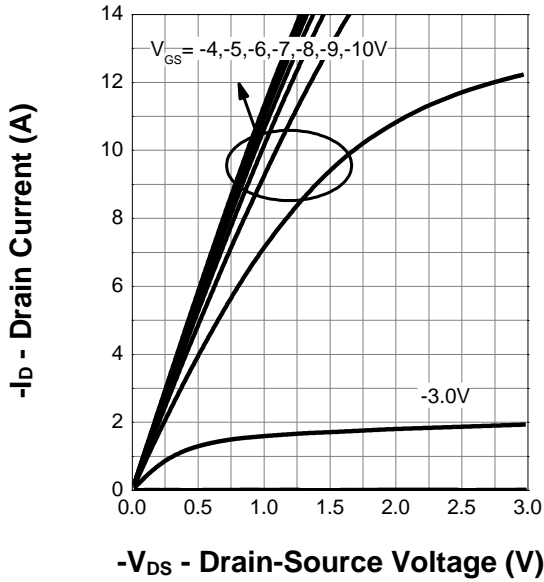
1. Pulse test ; pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$
2. Guaranteed by design, not subject to production testing

Typical Characteristics (Cont.)

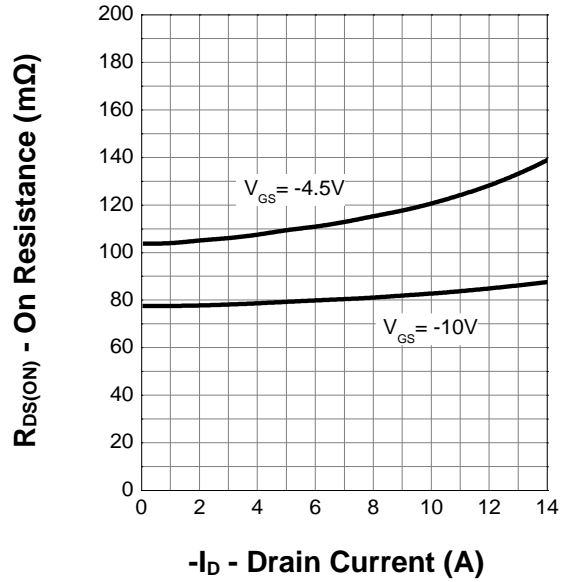


Typical Characteristics (Cont.)

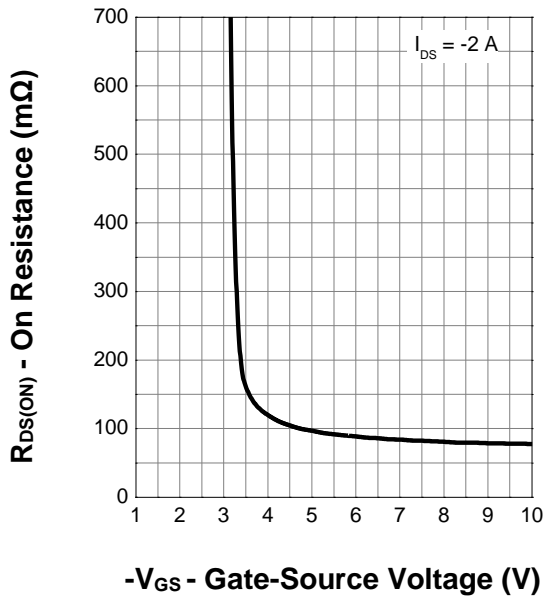
Output Characteristics



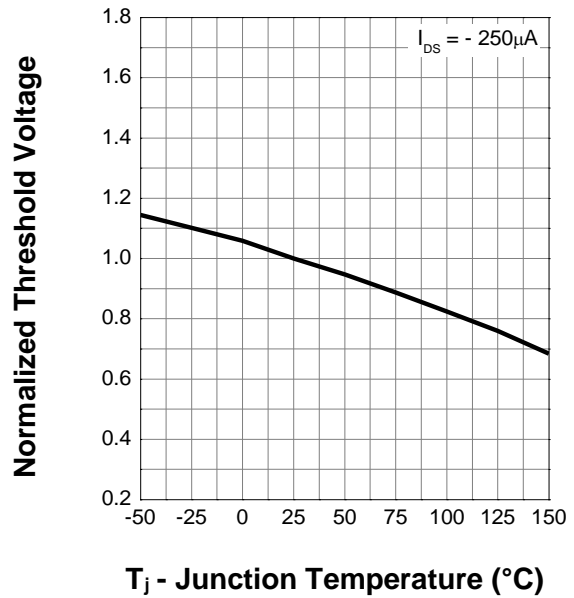
Drain-Source On Resistance



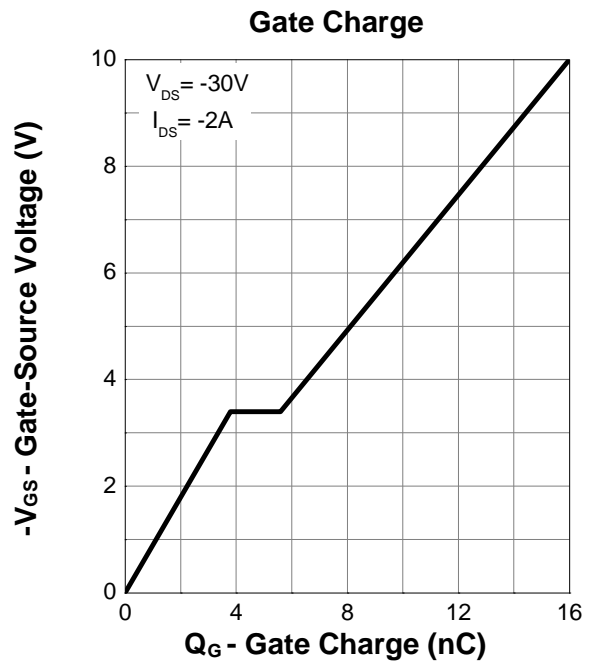
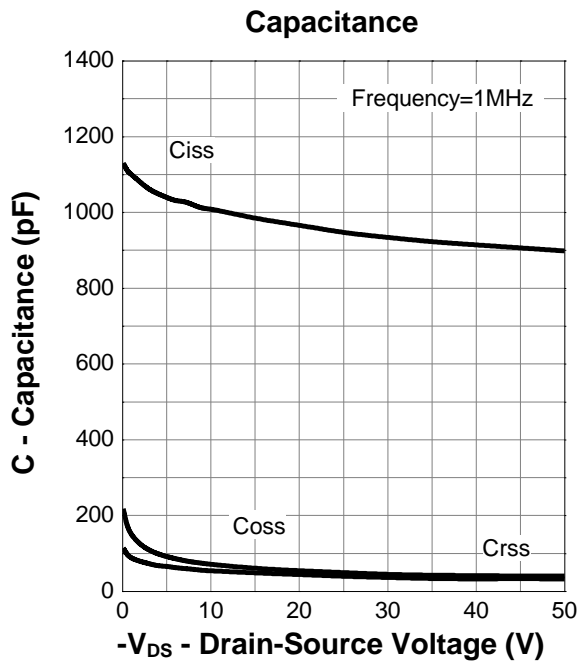
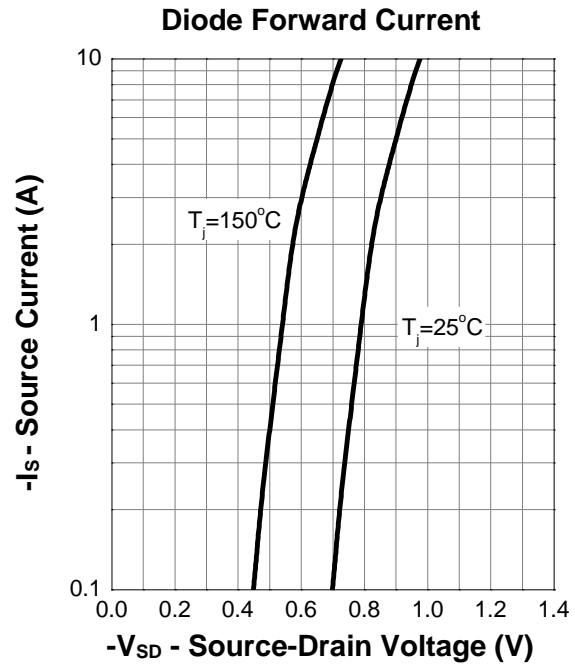
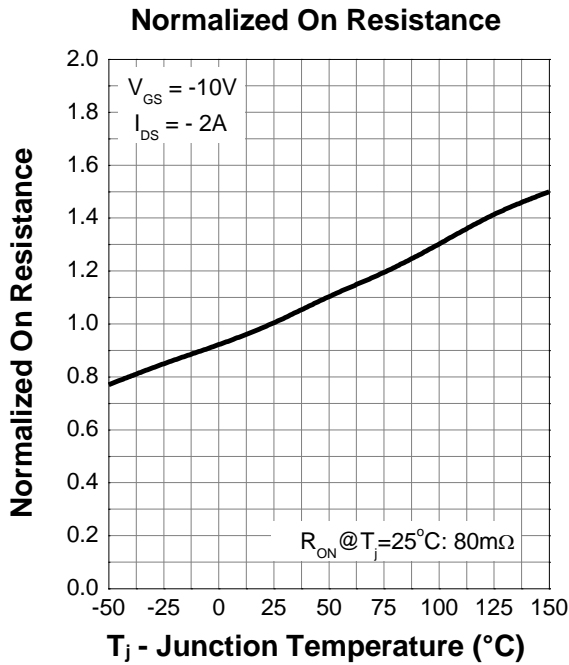
Transfer Characteristics



Normalized Threshold Voltage

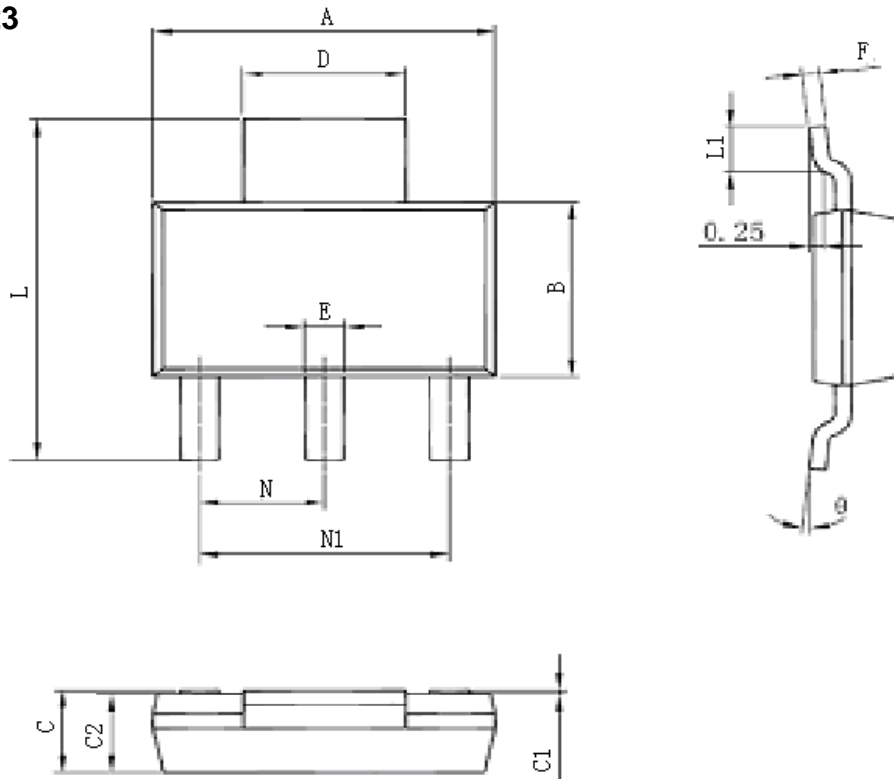


Typical Characteristics (Cont.)



Package Information

SOT-223



Items	Values(mm)	
	MIN	MAX
A	6.18	6.42
B	3.28	3.72
C	1.50	1.82
C1	0.00	0.12
C2	1.48	1.72
D	2.88	3.12
E	0.64	0.85
F	0.23	0.37
L	6.80	7.10
L1	0.88	1.17
N	2.25	2.40
N1	4.50	4.80
θ	0°	10°