

-60V_{DS}/±20V_{GS} P-Channel Advanced Mode MOSFET
Features

- $V_{DS}=-60V, I_D=-4A$
- $R_{DS(ON)}=85m\Omega$ (TYP.) $V_{GS}=-10V$
- $R_{DS(ON)}=105m\Omega$ (TYP.) $V_{GS}=-4.5V$
- Fast Switching
- Low On-Resistance

Applications

- Switch switching
- Power management in portable/desktop PCs

Ordering Information

Device	package	Device Marking	Package Qty.
MCT04P06Y	SOT-223	**	2500/PCS

Absolute Maximum Ratings ($T_a=25^\circ C$, unless otherwise noted)

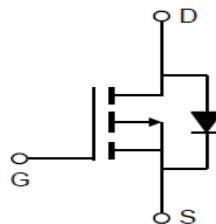
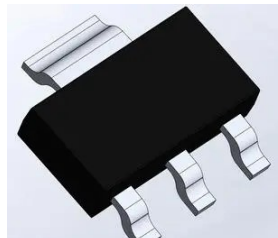
Parameter	Symbol	Value	Unit
Drain-Source Voltage ($V_{GS}=0V$)	V_{DS}	-60	V
Gate-Source Voltage ($V_{GS}=0V$, static)	V_{GS}	±20	V
Continuous Drain Current ($T_a=25^\circ C$)	I_D	-4	A
Continuous Drain Current ($T_a=70^\circ C$)		-2.5	A
Pulsed Drain Current	I_{DM}	-20	A
Avalanche Energy, Single Pulsed	E_{AS}	13	mJ
Maximum Power Dissipation ($T_a=25^\circ C$)	P_D	1.5	W
Maximum Power Dissipation ($T_a=70^\circ C$)		0.6	W
Operating, Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ C$

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	μA
Gate -Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.4	-1.9	-2.4	V
Drain-Source On-stage Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-1A$	-	60	90	m Ω
		$V_{GS}=-4.5V, I_D=-1A$	-	85	110	

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	-	75	-	$^\circ C/W$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	-	24	-	$^\circ C/W$

SOT-223


Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=-15V$ $V_{GS}=0V$ $f=1MHz$	-	1150	-	pF
Output capacitance	C_{oss}		-	95	-	
Reverse transfer capacitance	C_{rss}		-	77	-	
Gate Resistance	R_g	$f=1MHz$	-	7.5	-	Ω
Total Gate Charge	Q_g	$V_{DS}=-15V$ $V_{GS}=-10V$ $I_D=-15A$	-	46	-	nC
Gate Source Charge	Q_{gs}		-	15.5	-	
Gate Drain Charge	Q_{gd}		-	18	-	
Turn-on delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $R_L=1\Omega$ $R_G=3\Omega$	-	15	-	ns
Rise time	t_r		-	17	-	
Turn-off delay Time	$t_{d(off)}$		-	68	-	
Fall time	t_f		-	39	-	
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=-1A$	-	-0.9	-1.2	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_{SD}=-15A$ $dI/dt=100A/\mu s$	-	37	-	ns
Reverse Recovery Charge	Q_{rr}		-	5.3	-	nC

Electrical Characteristics Diagrames

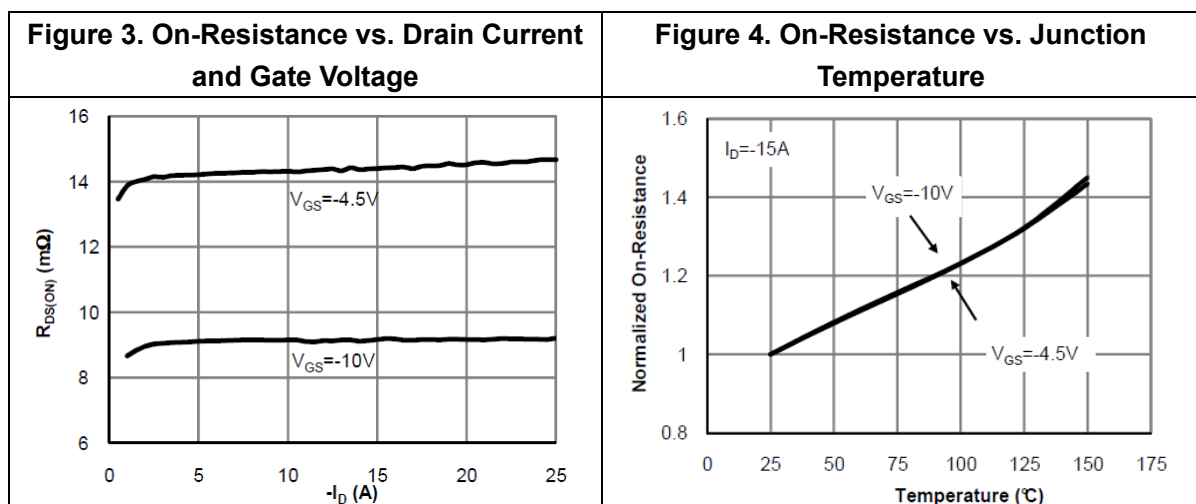
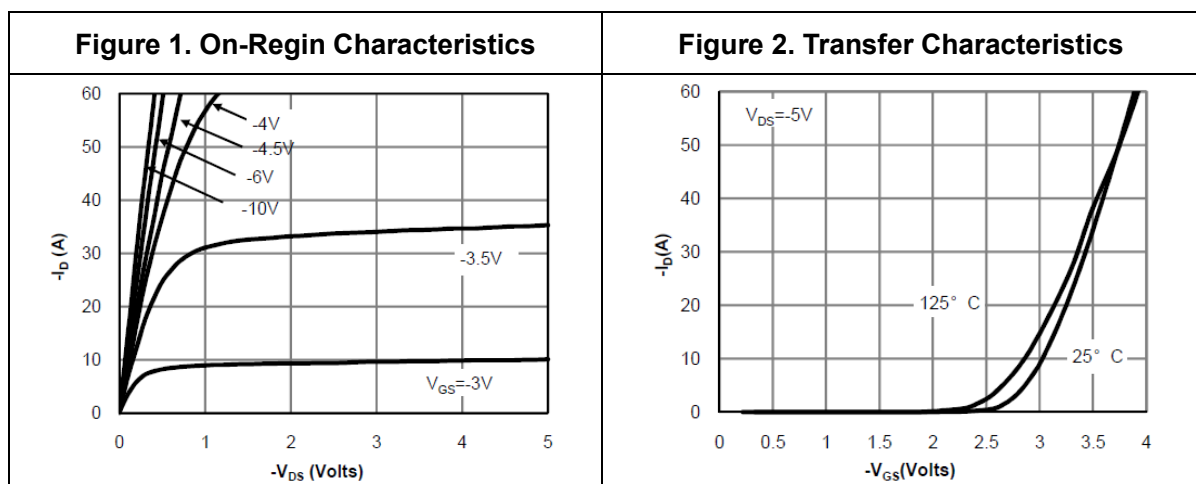


Figure 5. On-Resistance vs. Gate-Source Voltage

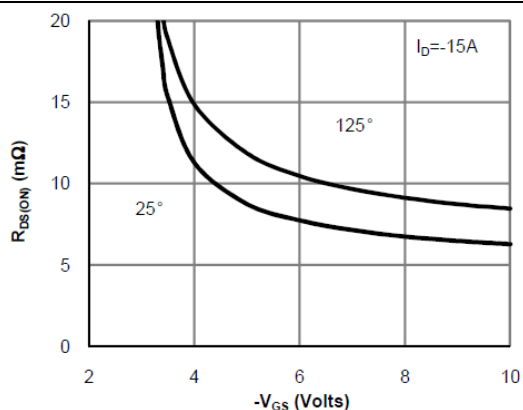


Figure 6. Body-Diode Characteristics

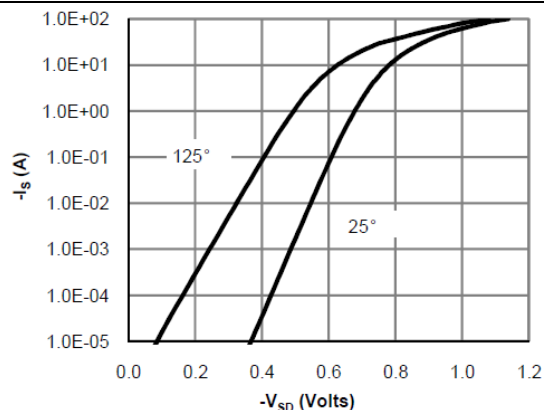


Figure 7. Gate-Charge Characteristics

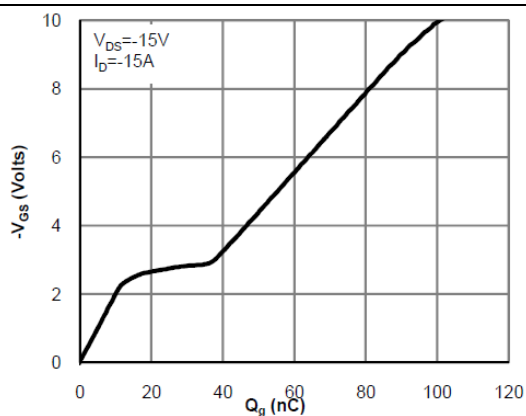


Figure 8. Capacitance Characteristics

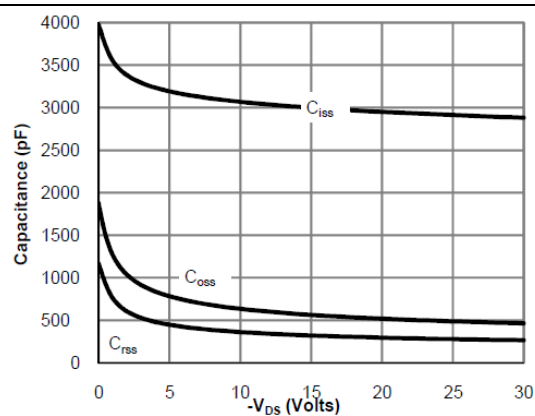


Figure 9. Maximum Forward Biased Safe Operating Area

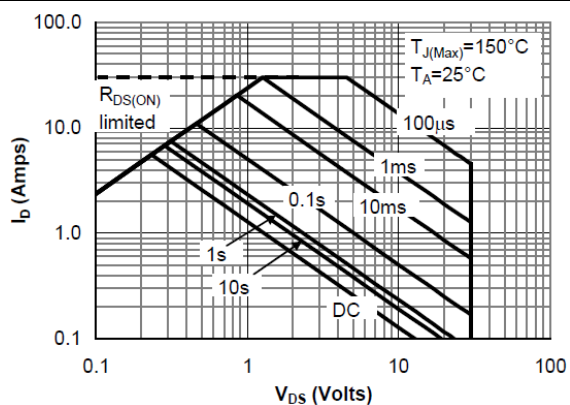
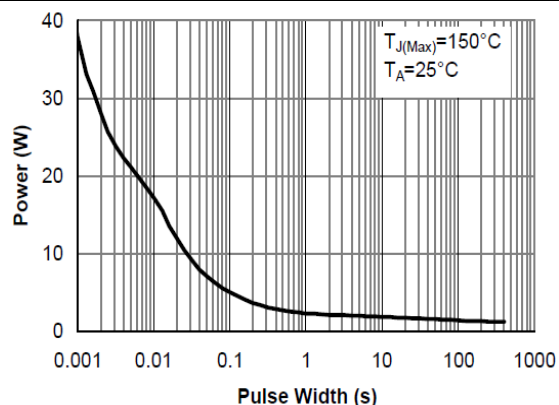


Figure 10. Single Pulse Power Rating Junction-to-Ambient



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