

Descriptions

This-60V P-Channel MOSFET in a SOT-23-6 Plastic Package.

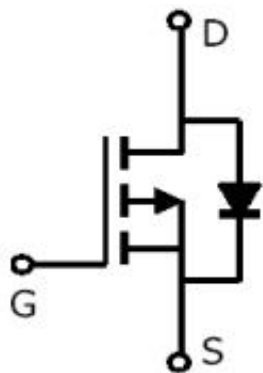
Features

- Ultra Low on-resistance
- Fast switching.Low on voltage
- Halogen-free product

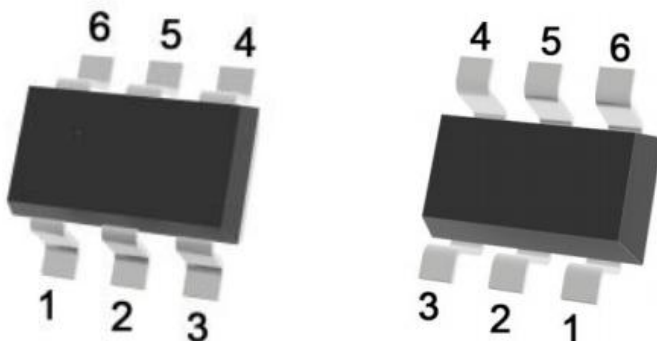
Applications

PWM application & Load switch

Equivalent Circuit



Pinning



PIN1, PIN 2, PIN 5, PIN 6 : Drain

PIN 3: Gate

PIN 4: Source

Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	-60	V
Gate-Body Leakage Voltage		V_{GSS}	± 20	V
Drain Current - Continuous		I_D	-5	A
Power Dissipation (Surface Mounted on FR4 Board, $t \leq 10$ sec.)		P_D	1.5	W
Operating and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Maximum Junction-to-Ambient	$t \leq 10s$	$R_{\theta JA}$	118.6	°C/W
Maximum Junction-to-Ambient	Steady-State		161.6	°C/W
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	83.3	°C/W

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V \quad I_D=-250\mu A$	-60	-63		V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS} \quad I_D=-250\mu A$	-1	-1.5	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V \quad I_D=-2A$		84	100	mΩ
		$V_{GS}=-4.5V \quad I_D=-1A$		103	125	mΩ
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V \quad V_{GS}=0V$			-1.0	μA
Gate-Body Leakage.	I_{GSS}	$V_{GS}=-20V$			-100	nA
		$V_{GS}=20V$			100	nA
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V \quad I_S=-1A \quad T_J=25^\circ C$			-1.2	V
Input Capacitance	C_{iss}	$V_{DS}=-25V \quad V_{GS}=0V \quad f=1.0MHz$		885		pF
Output Capacitance	C_{oss}			90		
Reverse Transfer Capacitance	C_{rss}			64		
Total Gate Charge	$Q_g(-10V)$	$V_{DS}=-30V \quad V_{GS}=-10.0V \quad I_D=-5A$		25		nC
Total Gate Charge	$Q_g(-4.5V)$			9.6		
Gate-to-Source Charge	Q_{gs}			3		
Gate-to-Drain Charge	Q_{gd}			7		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-30V \quad V_{GS}=-10V \quad R_L=7.5\Omega \quad R_G=3\Omega$		8		ns
Turn-On Rise Time	t_r			4		
Turn-Off Delay Time	$t_{d(off)}$			32		
Turn-Off Fall Time	t_f			7		

Electrical Characteristic Curve

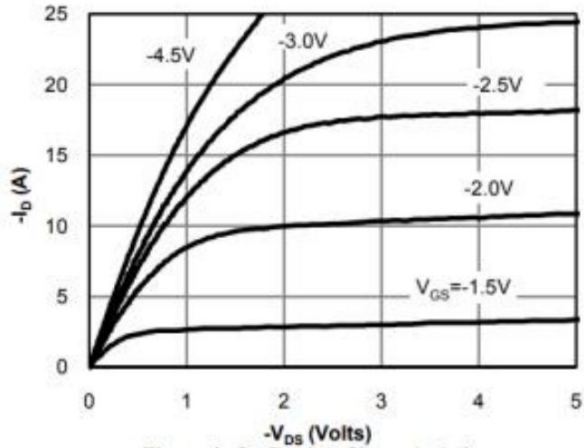


Figure 1: On-Region Characteristics

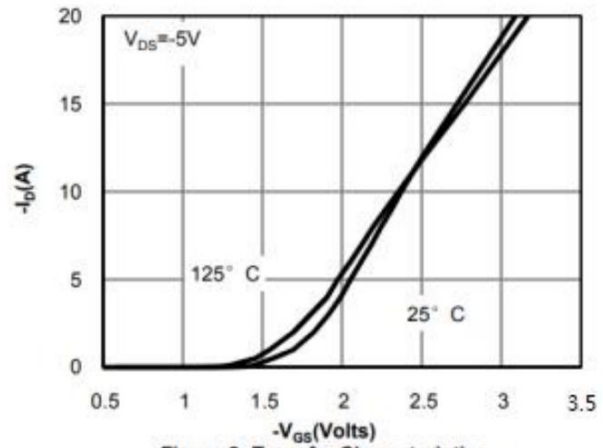


Figure 2: Transfer Characteristics

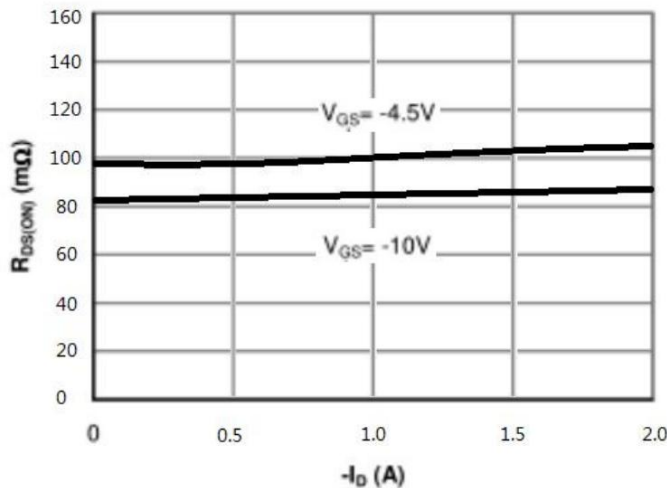


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

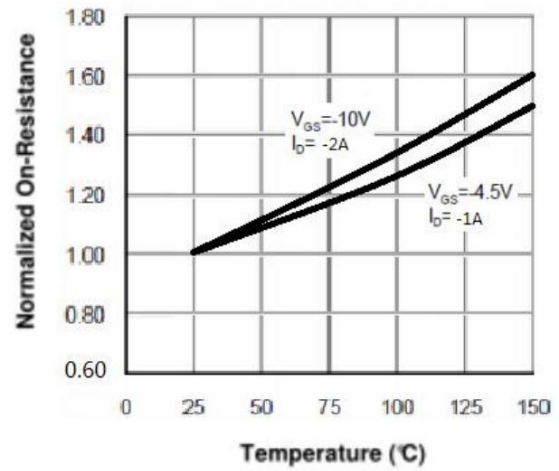


Figure 4: On-Resistance vs. Junction Temperature

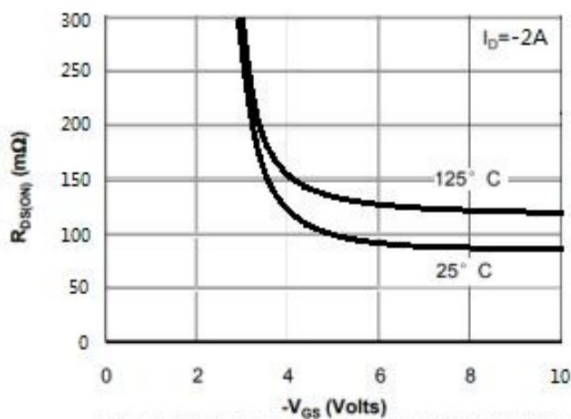


Figure 5: On-Resistance vs. Gate-Source Voltage

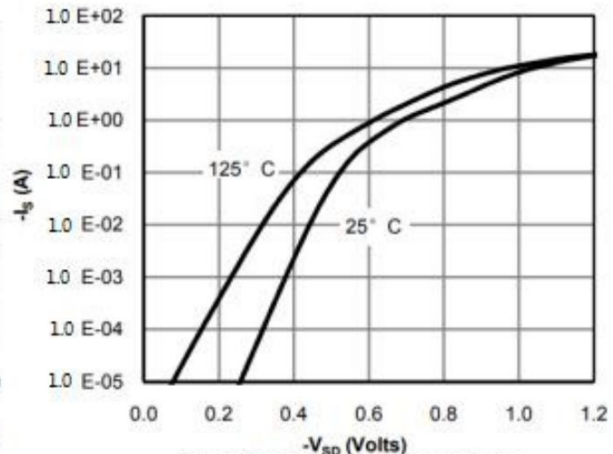


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

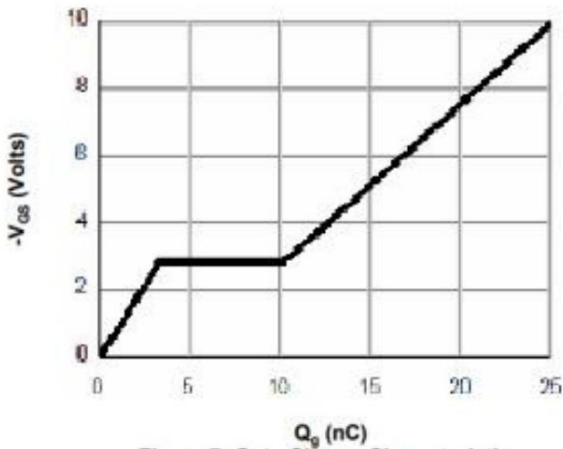


Figure 7: Gate-Charge Characteristics

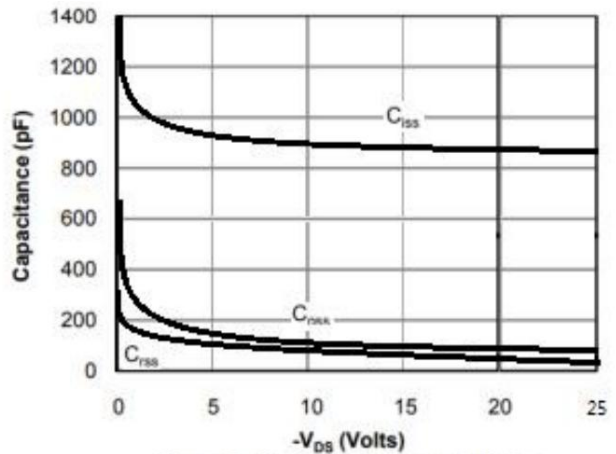


Figure 8: Capacitance Characteristics

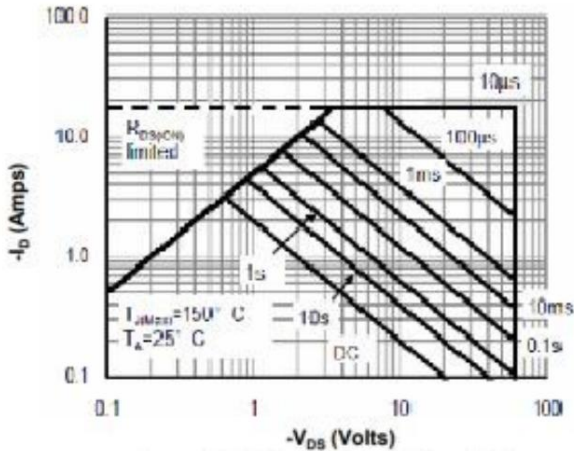


Figure 9: Maximum Forward Biased Safe Operating Area

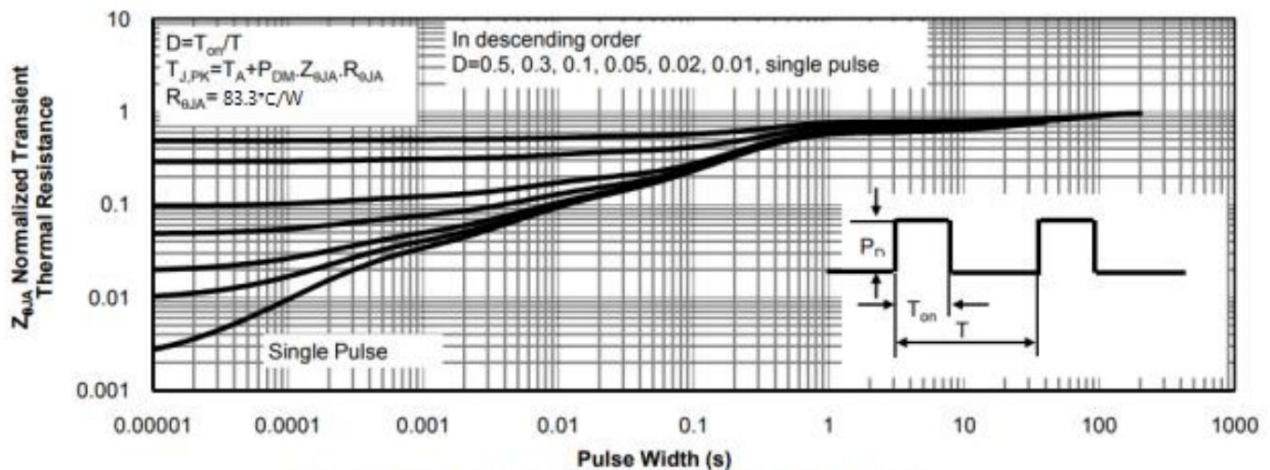


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



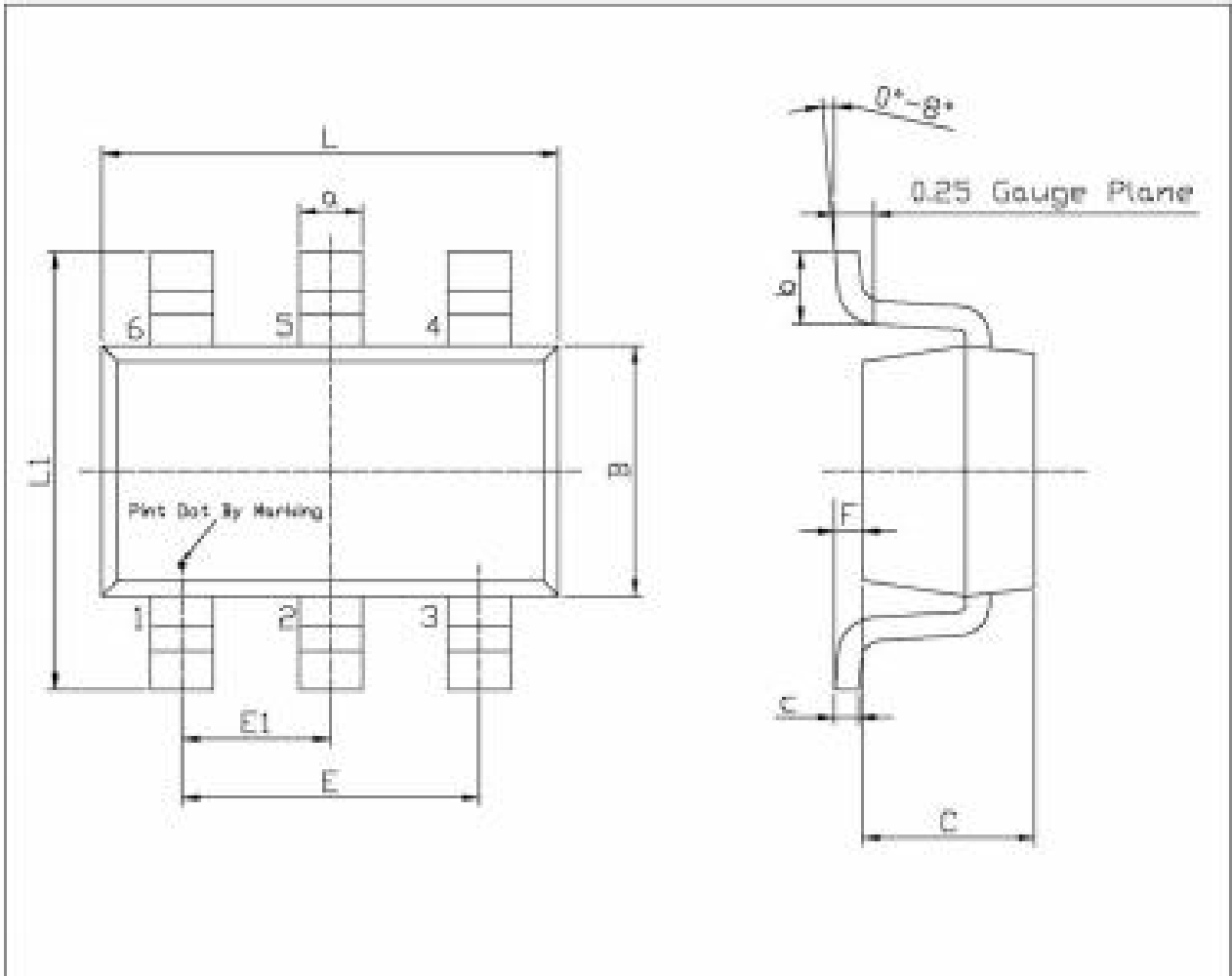
Note:
 5P06: Product Type.
 ****: Company Code

Packaging SPEC

REEL INFORMATION

Package Type	Units					Dimension (unit: mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOT23-6	3,000	10	30,000	4	120,000	7" x8	210×205×205	445×230×435

Package Outline Dimensions



Unit: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.02	3.02	E1	0.85	1.05
B	1.50	1.70	a	0.35	0.50
C	0.90	1.30	c	0.10	0.20
L1	2.60	3.00	b	0.35	0.50
E	1.60	2.00	F	a	0.15

SOT23-6