

Description

This -12V -6A P-Channel MOSFET in a SOT-23-3 Plastic Package.

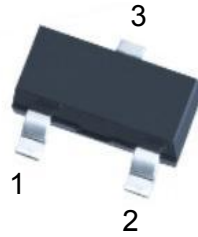
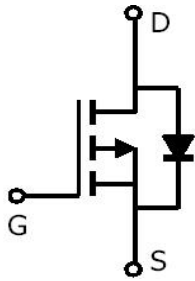
Applications

Power Management in Notebook computer, Portable Equipment and Battery powered systems.

Features

- $V_{DS} (V) = -12V$
- $I_D = -6 A (V_{GS} = \pm 10V)$
- Halogen-Free Product

V_{DSS}	$R_{DS(on)Typ}$	I_D
-12V	13m Ω	-6A

Equivalent Circuit & Pinning


PIN 1 : Gate

PIN 2 : Source

PIN 3 : Drain

Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V _{DSS}	-12	V	
Gate-Source Voltage	V _{GSS}	±10	V	
Continuous Drain Current	I _D (T _a =25°C)	-6	A	
Continuous Drain Current	I _D (T _a =70°C)	-5.2	A	
Pulsed Drain Current	I _{DM}	-20	A	
Avalanche Current	I _{AS}	15.1	A	
Avalanche energy L=0.5mH	E _{AS}	239.4	mJ	
Power Dissipation for Single Operation	P _D (T _a =25°C)	1.7	W	
Maximum Junction Temperature	T _j	150	°C	
Storage Temperature Range	T _{stg}	-55 ~ 150	°C	
Maximum Junction-to-Ambient	t≤5s	R _{θJA}	130	°C/W
Maximum Junction-to-Lead	Steady-State	R _{θJL}	73.5	

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu A$ $V_{GS}=0V$	-12	-17		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-12V$ $V_{GS}=0V$			-1.0	μA
		$V_{DS}=-9.6V$ $V_{GS}=0V$ $T_J=55^\circ C$			-5.0	
Gate-Body leakage current	I_{GSS}	$V_{DS}=0V$ $V_{GS}=\pm 10V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-0.4	-0.7	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V$ $I_D=-10A$		13	14	m Ω
		$V_{GS}=-4.5V$ $I_D=-8A$		15	16	
		$V_{GS}=-2.5V$ $I_D=-5A$		19	21	
Diode Forward Voltage	V_{SD}	$I_S=-1A$ $V_{GS}=0V$		-0.74	-1.0	V
Gate Resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		6.7		Ω
Input Capacitance	C_{iss}	$V_{DS}=-15V$ $V_{GS}=0V$ $f=1.0MHz$		2110		μF
Output Capacitance	C_{oss}			550		
Reverse Transfer Capacitance	C_{rss}			385		
Total Gate Charge	Q_g	$V_{GS}=-4.5V$ $V_{DS}=-6V$ $I_D=-10A$		12.7		nC
Gate-Source Charge	Q_{gs}			1.7		
Gate-Drain Charge	Q_{gd}			3.4		
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS}=-4.5V$ $V_{DS}=-6V$ $R_L=0.67\Omega$ $R_{GEN}=3\Omega$		11		ns
Turn-on Rise Time	t_r			25		
Turn-off Delay Time	$t_{d(OFF)}$			70		
Turn-off Fall Time	t_f			41.5		

Electrical Characteristic Curve

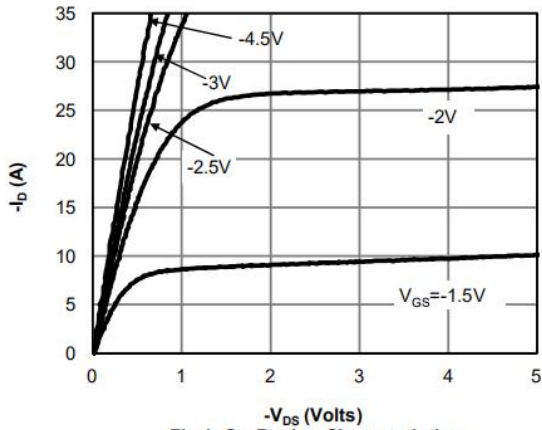


Fig 1: On-Region Characteristics

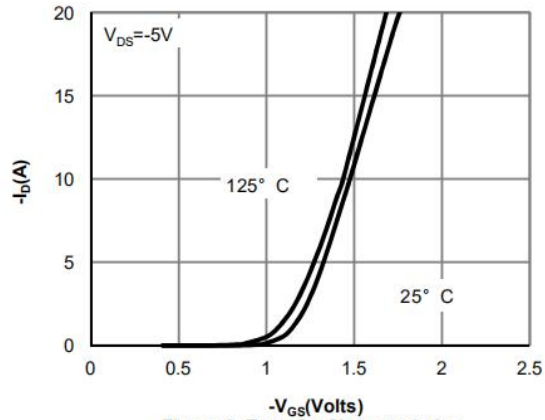


Figure 2: Transfer Characteristics

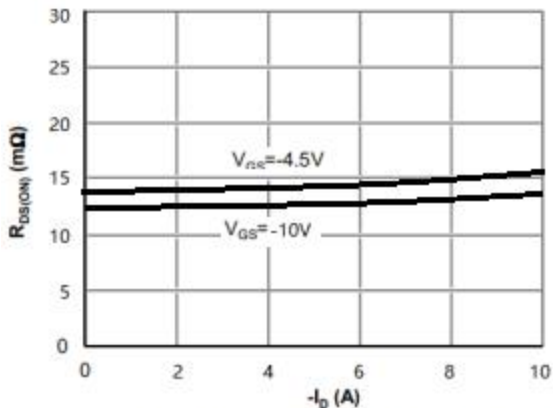


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

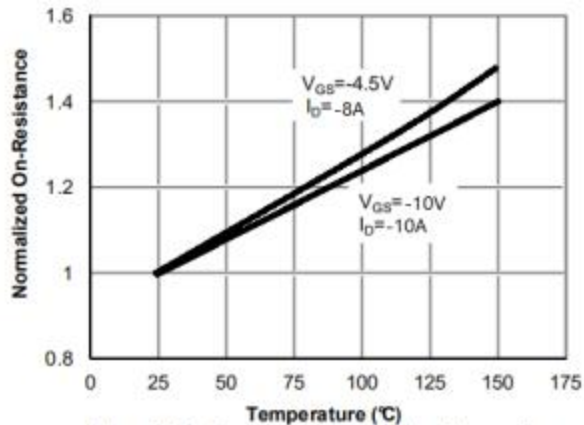


Figure 4: On-Resistance vs. Junction Temperature

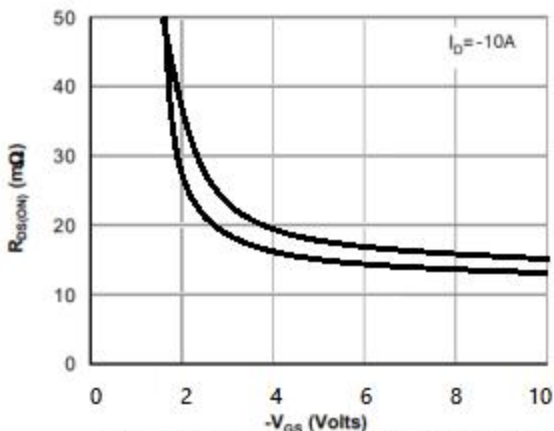


Figure 5: On-Resistance vs. Gate-Source Voltage

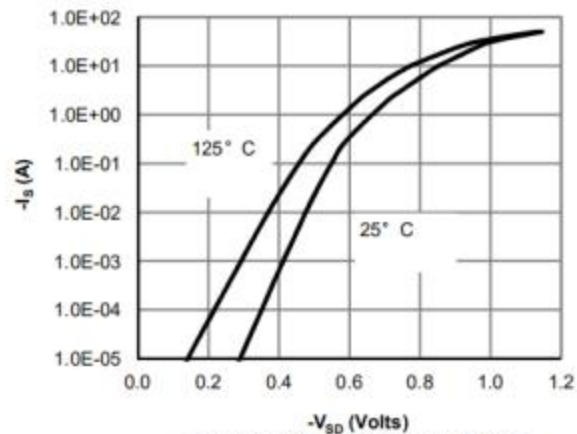


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

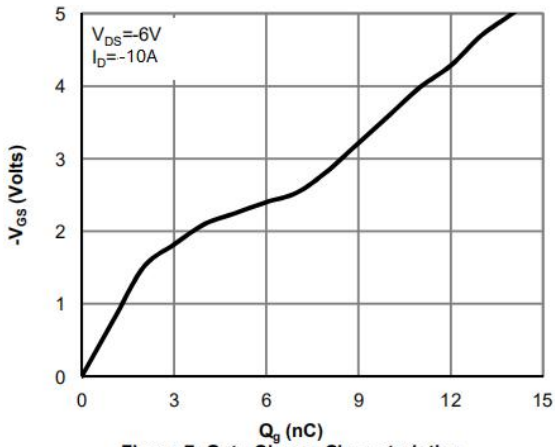


Figure 7: Gate-Charge Characteristics

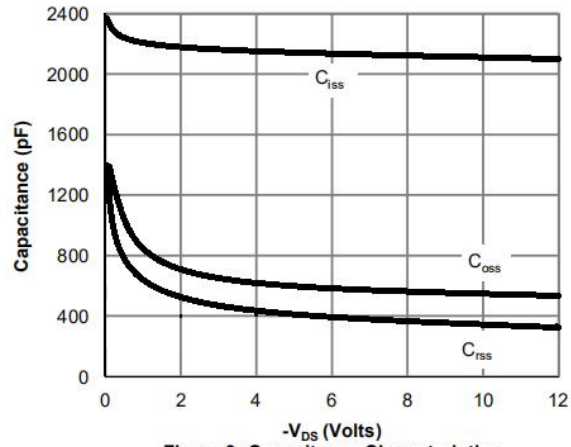


Figure 8: Capacitance Characteristics

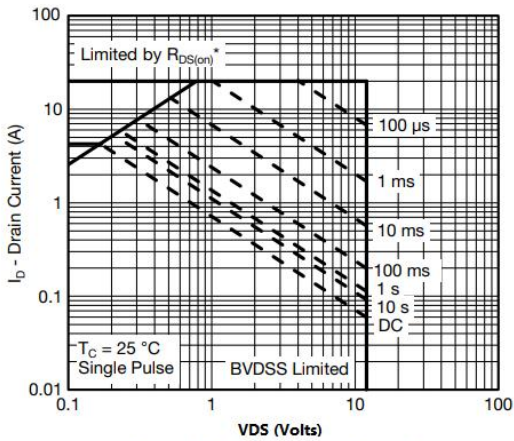


Figure 9: Maximum Forward Biased Safe Operating Area

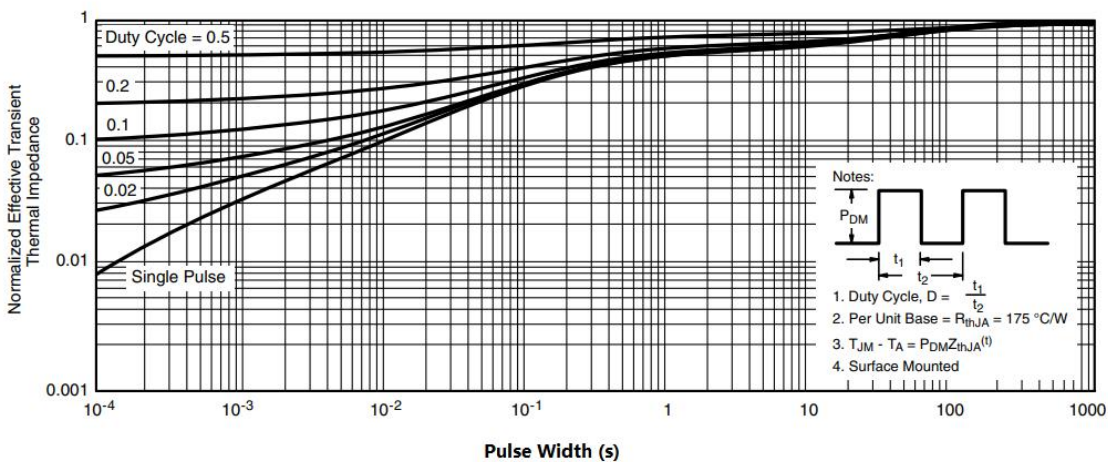
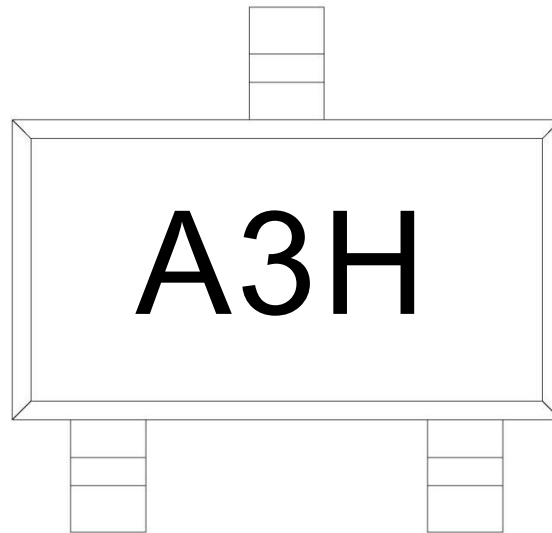


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

H: Company Code.

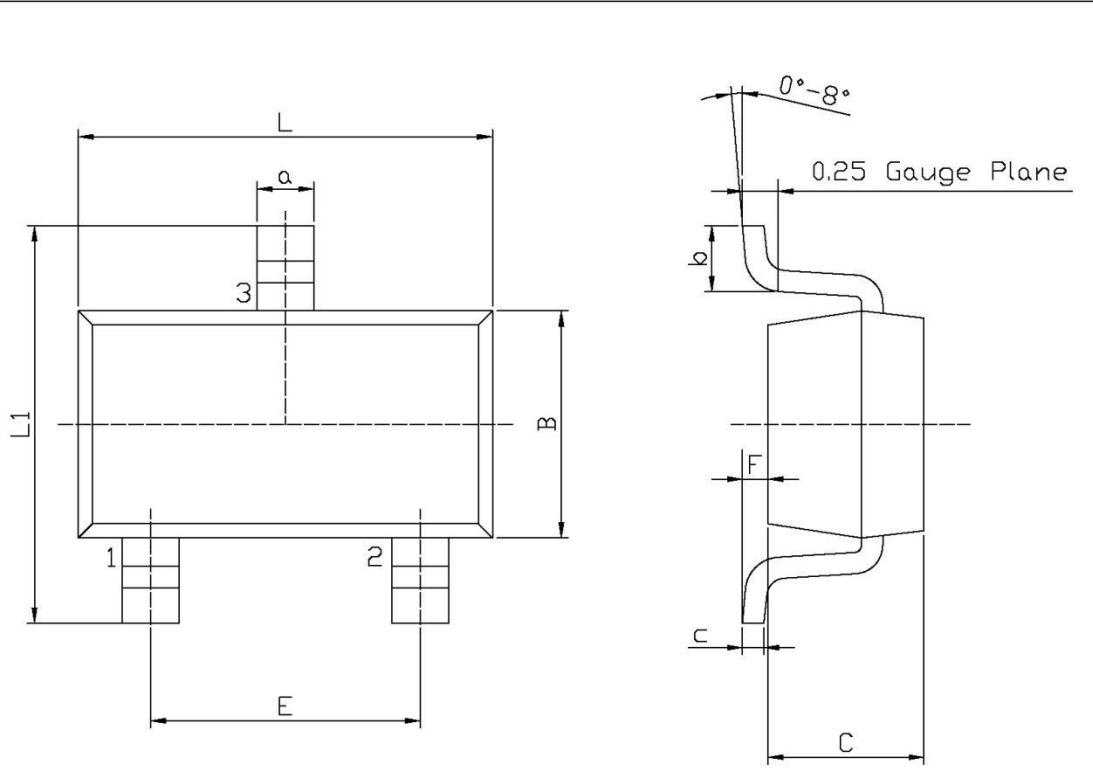
A3 : Product Type

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
SOT23-3	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	2.82	3.02	a	0.35	0.50
B	1.50	1.70	c	0.10	0.20
C	0.90	1.30	b	0.35	0.55
L1	2.60	3.00	F	0	0.15
E	1.80	2.00			

SOT23-3