

**-20V,-5A
P-Channel Mosfet**

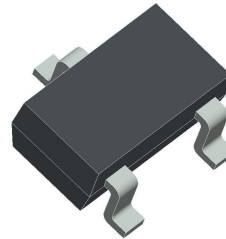
FEATURES

- RDS(ON) ≤ 32mΩ @VGS=-4.5V
- RDS(ON) ≤ 51mΩ @VGS=-2.5V
- ESD Rating: HBM 2.0KV

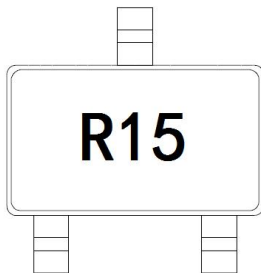
APPLICATIONS

- PWM Applications
- Load Switch
- Power Management

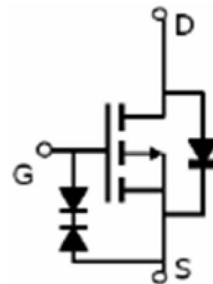
SOT-23



MARKING



P-CHANNEL MOSFET



Maximum ratings (Tc=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	
Continuous Drain Current	I _D	-5	A
Pulsed Drain Current	I _{DM}	-20	
Maximum Continuous Drain to Source Diode Forward	I _S	-5	
Maximum Power Dissipation	P _D	2.1	W
Thermal Resistance from Junction to Ambient(t ≤ 5s)	R _{θJA}	70	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55 ~ +150	

MOSFET ELECTRICAL CHARACTERISTICS TC=25 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20	-21		V
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.35	-0.5	-0.9	
Gate-source leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 12V$			-4	μA
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$			-1	μA
Drain-source on-state resistance ^a	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -4A$		30	32	m Ω
		$V_{GS} = -2.5V, I_D = -3A$		36	51	
Body diode voltage	V_{SD}	$I_S = -4A$		-0.9	-1.2	V
Dynamic^b						
Input capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		1030		pF
Output capacitance	C_{oss}			180		
Reverse transfer capacitance	C_{rss}			130		
Total gate charge	Q_g	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -5A$		13		nC
Gate-source charge	Q_{gs}			1.5		
Gate-drain charge	Q_{gd}			3.6		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = -10V, V_{GS} = -4.5A, RL = 2\Omega, R_{GEN} = 3\Omega$		12		ns
Rise time	t_r			10		
Turn-off delay time	$t_{d(off)}$			19		
Fall time	t_f			25		

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Typical Performance Characteristics

Figure 1: Output Characteristics

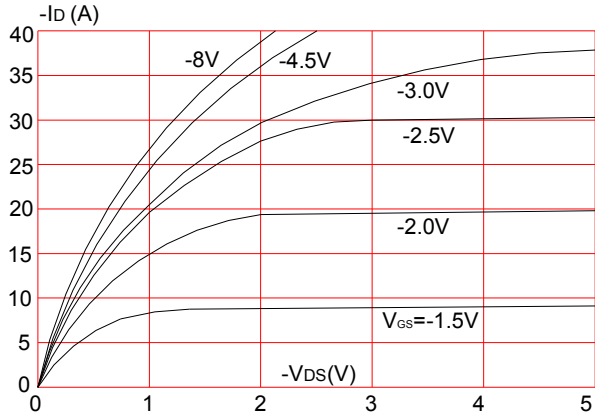


Figure 2: Typical Transfer Characteristics

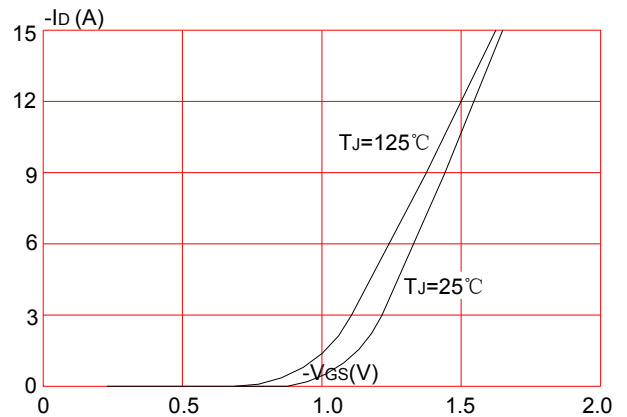


Figure 3: On-resistance vs. Drain Current

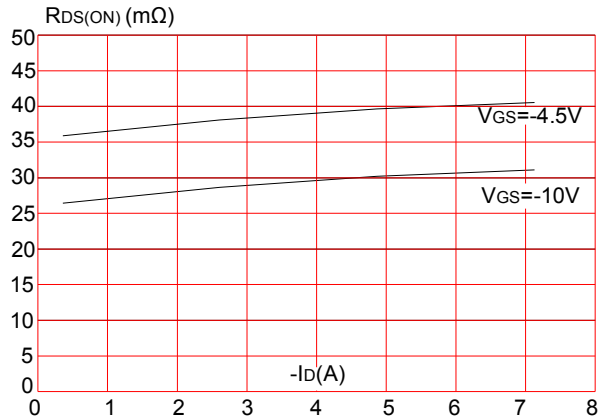


Figure 4: Body Diode Characteristics

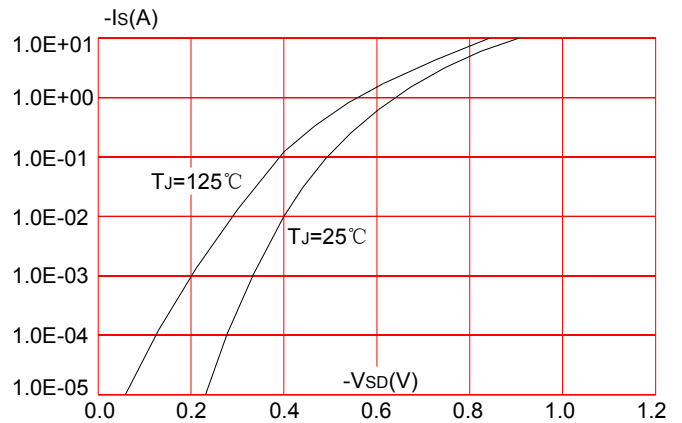


Figure 5: Gate Charge Characteristics

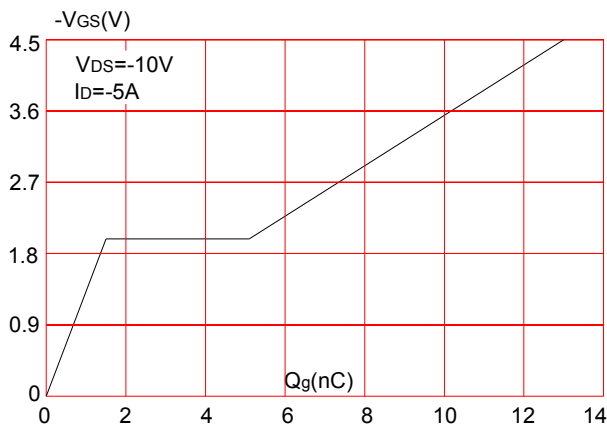


Figure 6: Capacitance Characteristics

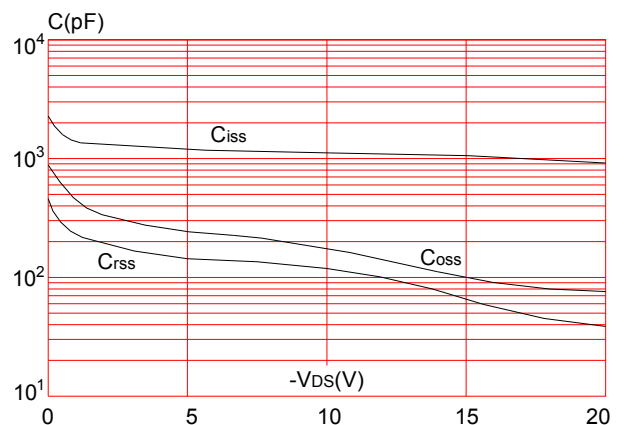


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

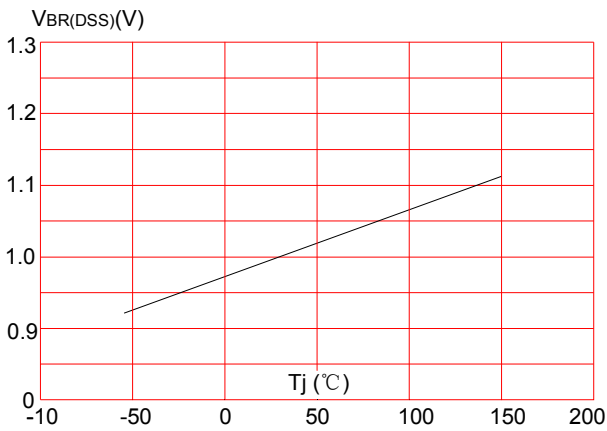


Figure 8: Normalized on Resistance vs. Junction Temperature

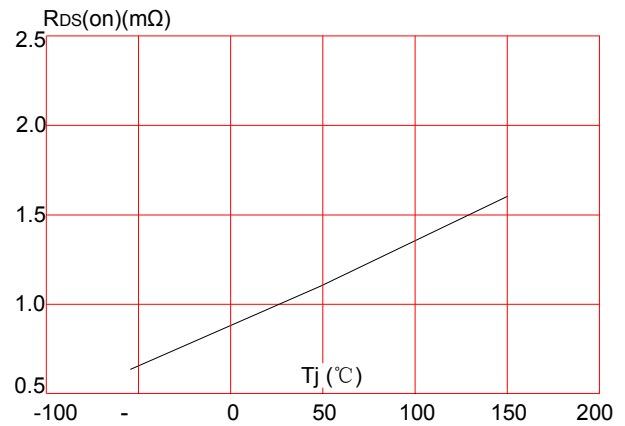


Figure 9: Maximum Safe Operating Area

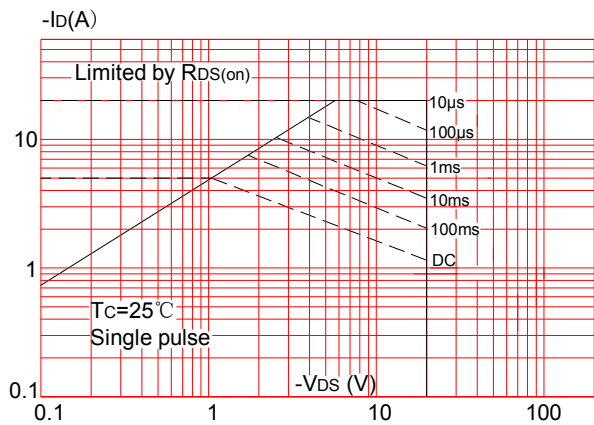


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

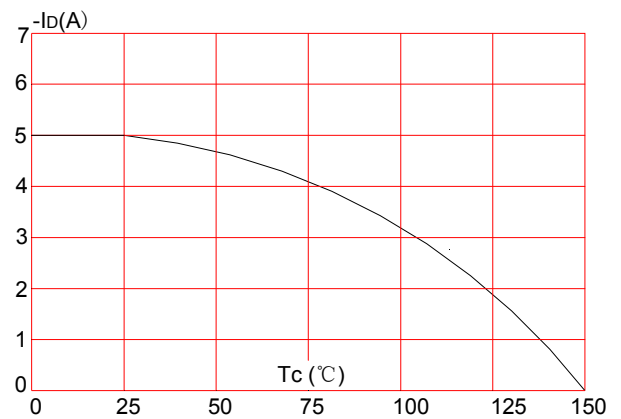
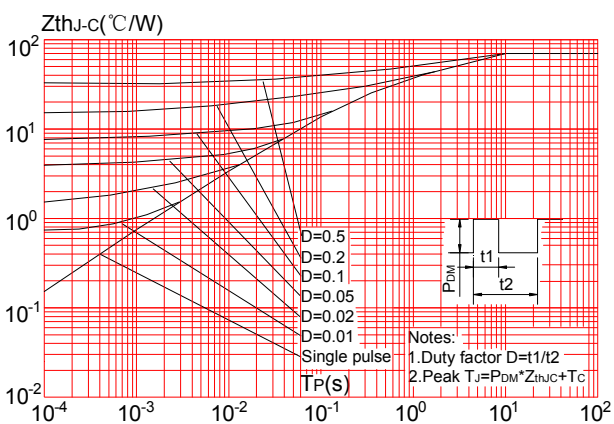
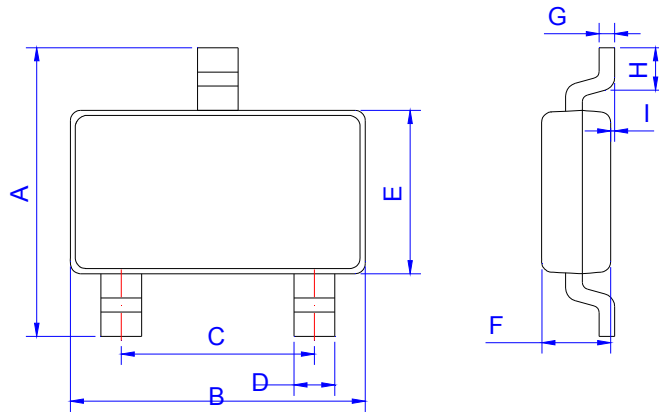


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient (SOT-23)



Package Mechanical Data



SOT-23

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.30	2.40	2.50	0.091	0.095	0.098
B	2.80	2.90	3.00	0.110	0.114	0.118
C	1.90 REF			0.075 REF		
D	0.35	0.40	0.45	0.014	0.016	0.018
E	1.20	1.30	1.40	0.047	0.051	0.055
F	0.90	1.00	1.10	0.035	0.039	0.043
G		0.10	0.15		0.004	0.006
H	0.20			0.008		
I	0		0.10	0		0.004