

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	-40	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -40V, V_{GS}=0V$	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS} = \pm 20V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D = -250\mu A$	-1.0	-1.7	-2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance Note2	$V_{GS} = -10V, I_D = -5A$	-	47	52	m Ω
		$V_{GS} = -4.5V, I_D = -4A$	-	53	69	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS} = -20V, V_{GS}=0V,$ $f=1.0MHz$	-	869	-	pF
C_{oss}	Output Capacitance		-	94	-	pF
C_{rss}	Reverse Transfer Capacitance		-	69	-	pF
Q_g	Total Gate Charge	$V_{DS} = -20V, I_D = -4A,$ $V_{GS} = -10V$	-	17.3	-	nC
Q_{gs}	Gate-Source Charge		-	3.2	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	4.3	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DS} = -20V, I_D = -4A,$ $V_{GS} = -10V, R_{GEN}=3\Omega$	-	10.3	-	ns
t_r	Turn-on Rise Time		-	4.3	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	39	-	ns
t_f	Turn-off Fall Time		-	46.5	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	- 5	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-22	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S = -5.5A$	-	-0.8	-1.2	V
t_{rr}	Reverse Recovery Time	$V_{GS}=0V, I_S = -5.5A,$	-	17	-	ns
Q_{rr}	Reverse Recovery Charge	$di/dt=100A/\mu s$	-	11.5	-	nC

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

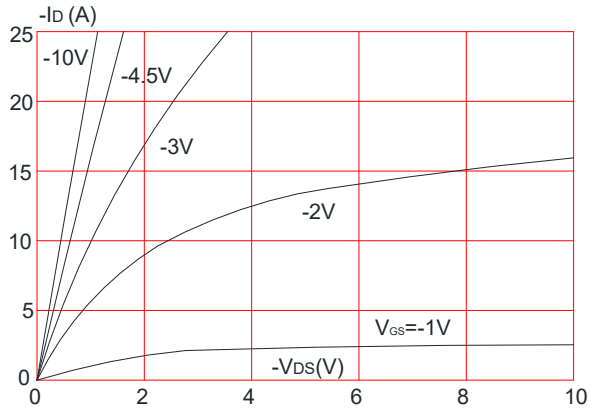


Figure 2: Typical Transfer Characteristics

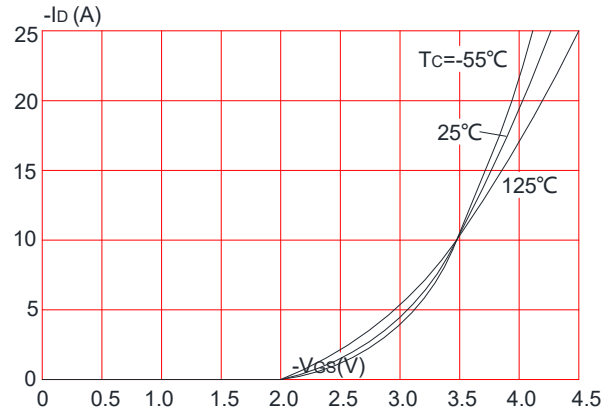


Figure 3: On-resistance vs. Drain Current

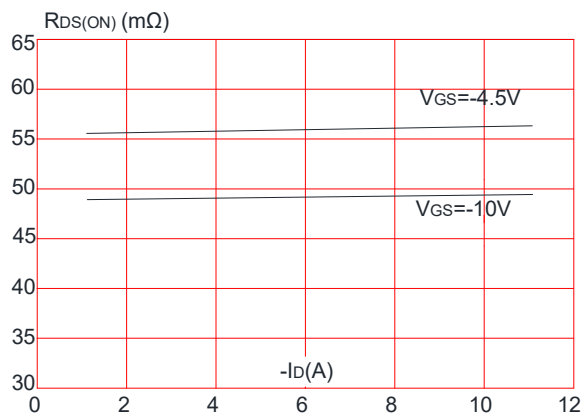


Figure 4: Body Diode Characteristics

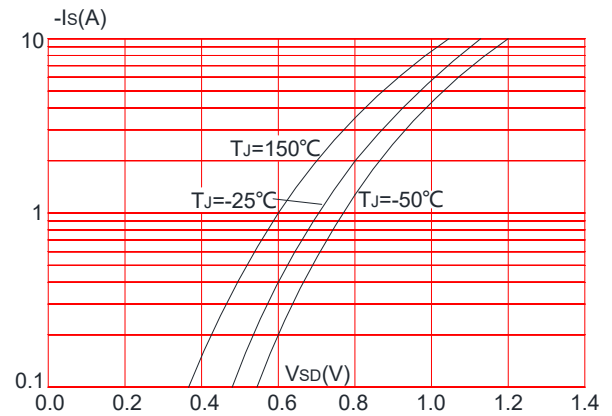


Figure 5: Gate Charge Characteristics

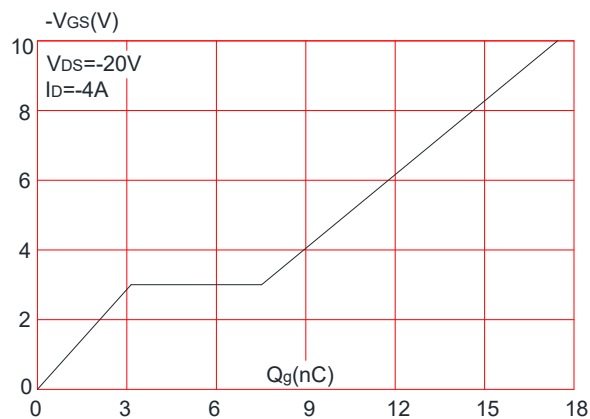


Figure 6: Capacitance Characteristics

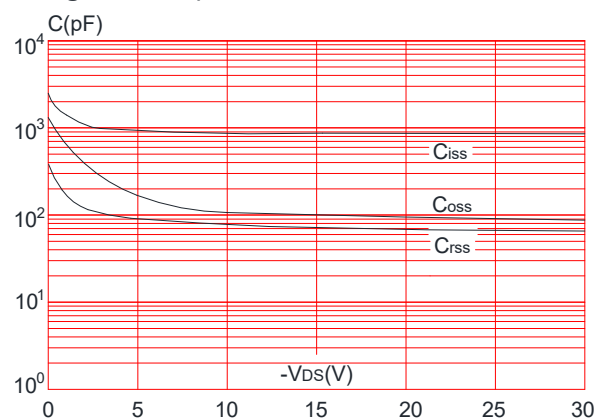


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

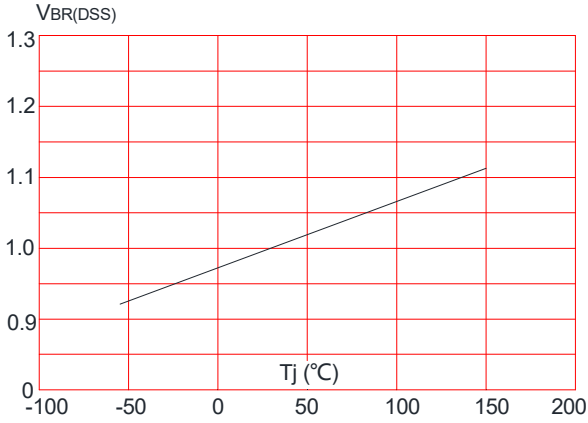


Figure 8: Normalized on Resistance vs. Junction Temperature

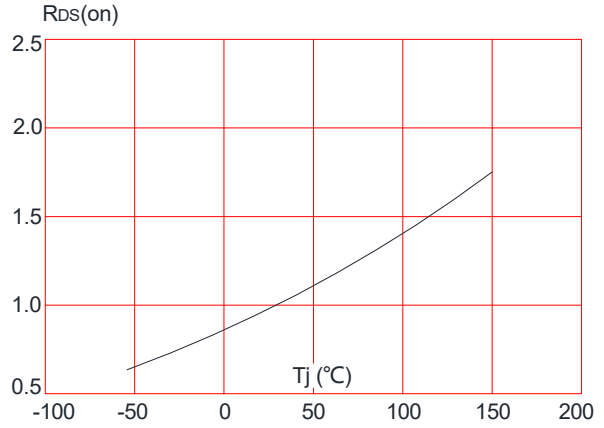


Figure 9: Maximum Safe Operating Area

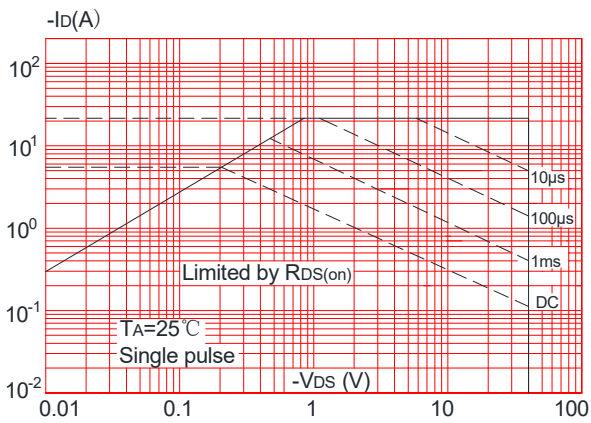


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

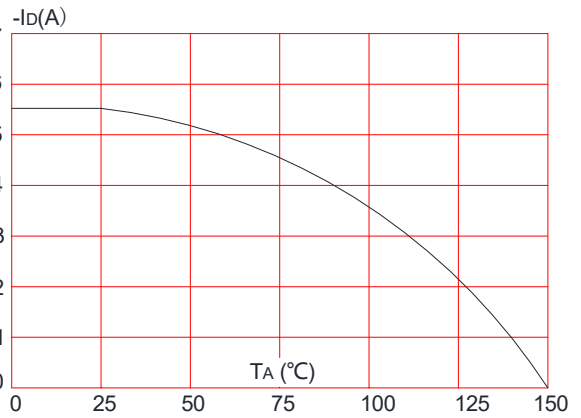
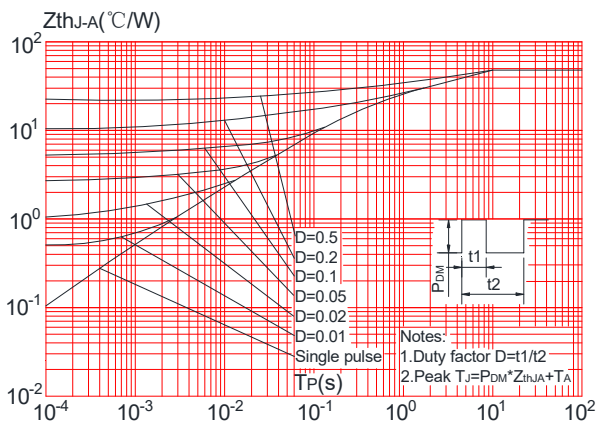
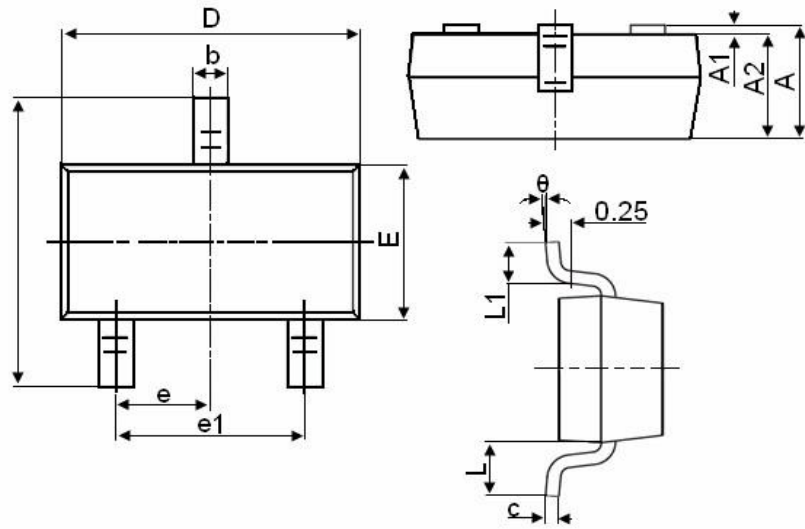


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



Package Mechanical Data:SOT-23



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°