

● Features

$V_{DS} = -100V$,

$I_D = -0.9A$

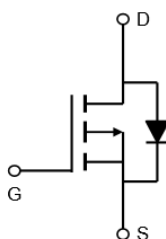
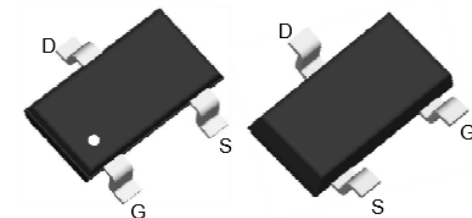
$R_{DS(ON)} @ V_{GS} = -10V$, TYP 470m Ω

$R_{DS(ON)} @ V_{GS} = -4.5V$, TYP 520m Ω

● General Description

- Super Low Gate Charge
- Excellent Cdv/dt effect decline

● Pin Configurations



SOT-23
MARKING:P200

● Absolute Maximum Ratings @ $T_A=25^{\circ}C$ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current (Continuous) *AC	$T_A=25^{\circ}C$	I_D	-0.9	A
	$T_A=70^{\circ}C$		-0.7	
Drain Current (Pulse) *B		I_{DM}	-1.8	A
Power Dissipation	$T_A=25^{\circ}C$	P_D	1	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	$^{\circ}C$

● Thermal Resistance Ratings

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient	$t \leq 5s$	R_{thJA}	100	125	$^{\circ}C/W$

● **Electrical Characteristics** @ $T_A=25^{\circ}\text{C}$ unless otherwise noted

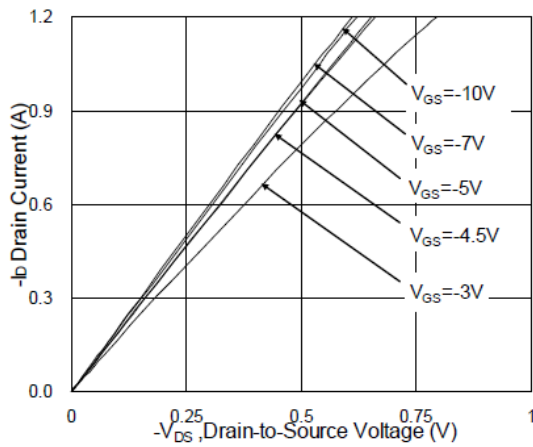
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-100	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -80V, V_{GS} = 0V$	--	--	-10	μA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS} = V_{DS}, I_{DS} = -250\mu A$	-1	-2	-3	V
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	--	--	± 100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -0.8A$	--	470	650	m Ω
	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -0.4A$	--	520	700	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = -5V, I_D = -0.8A$	--	3	--	S
Diode Forward Voltage	V_{SD}	$I_{SD} = -1A, V_{GS} = 0V$	--	--	-1.2	V
Diode Forward Current	I_S	$T_C = 25^{\circ}C$	--	--	-0.9	A
Switching						
Total Gate Charge	Q_g	$V_{GS} = -4.5V, V_{DS} = -15V,$ $I_D = -0.5A$	--	4.5	--	nC
Gate-Source Charge	Q_{gs}		--	1.14	--	nC
Gate-Drain Charge	Q_{gd}		--	1.5	--	nC
Turn-on Delay Time	$t_d (on)$	$V_{DS} = -50V, I_D = -0.5A$ $R_G = 3.3\Omega, V_{GS} = -10V$	--	13.6	--	ns
Turn-on Rise Time	t_r		--	6.8	--	ns
Turn-off Delay Time	$t_d(off)$		--	34	--	ns
Turn-Off Fall Time	t_f		--	3	--	ns
Dynamic						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1.0MHz$	--	553	--	pF
Output Capacitance	C_{oss}		--	29	--	pF
Reverse Transfer Capacitance	C_{rss}		--	20	--	pF

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design.

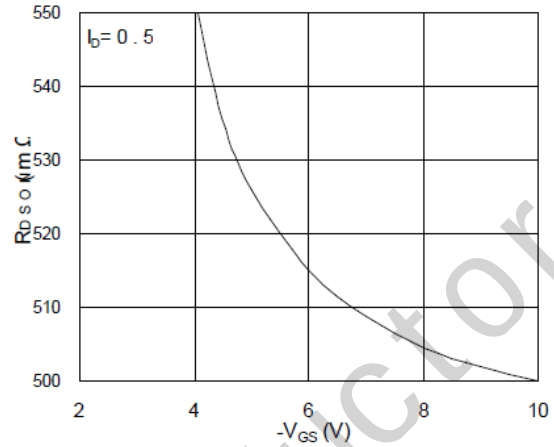
B: Repetitive rating, pulse width limited by junction temperature.

C: The current rating is based on the $\leq 10s$ junction to ambient thermal resistance rating.

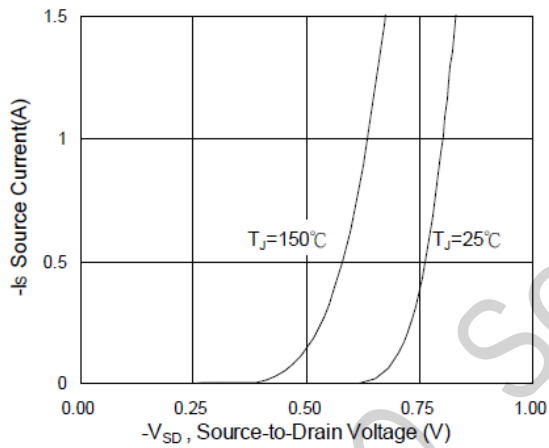
● Typical Performance Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise noted)



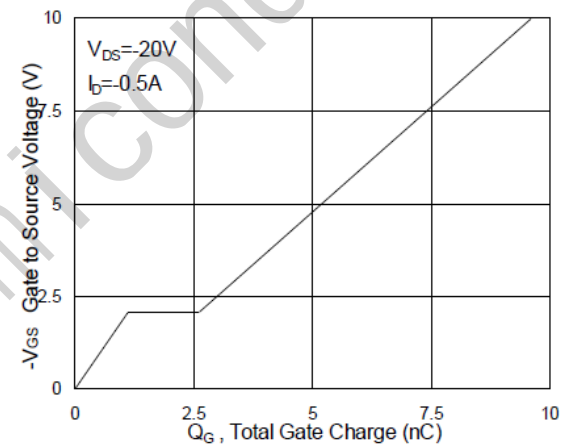
Output Characteristics



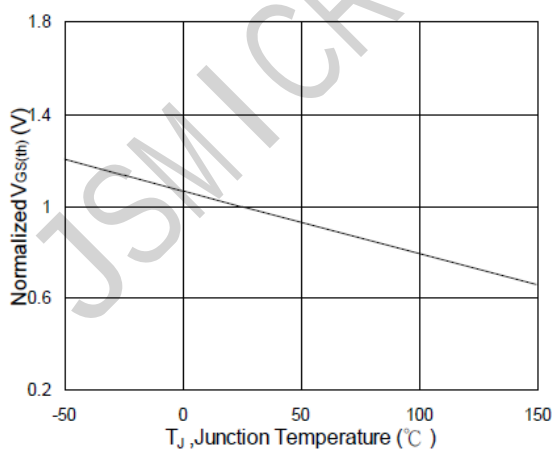
On-Resistance vs. Gate-to-Source Voltage



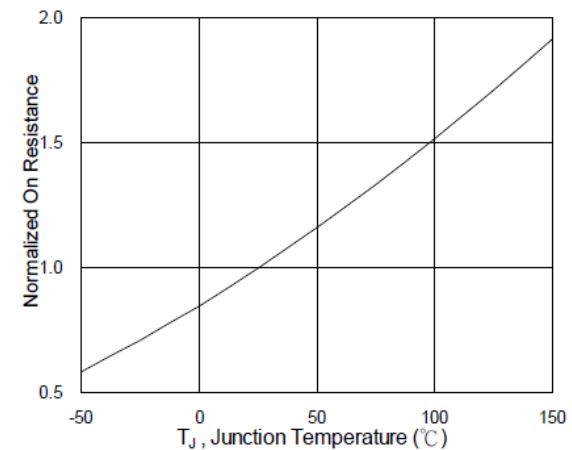
Source-Drain Diode Forward Voltage



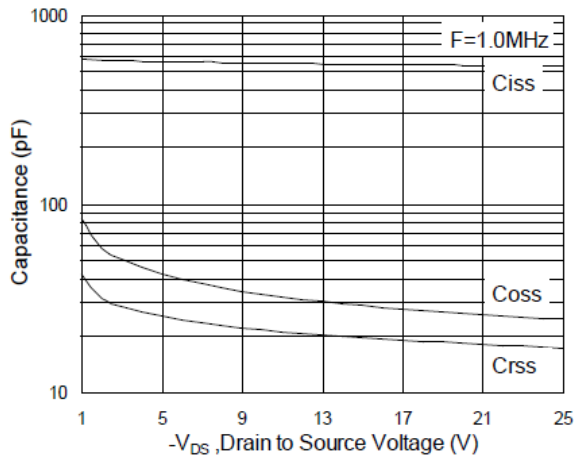
Gate Charge



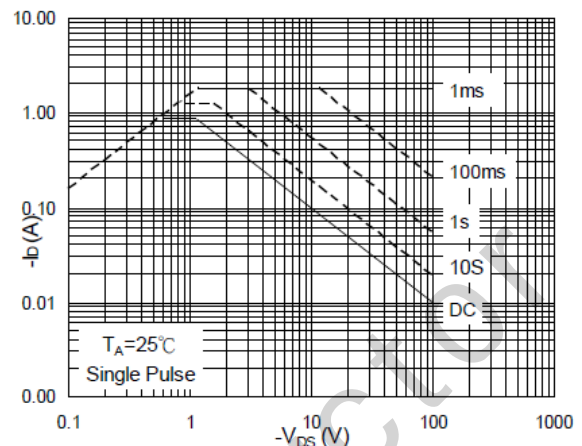
Threshold Voltage



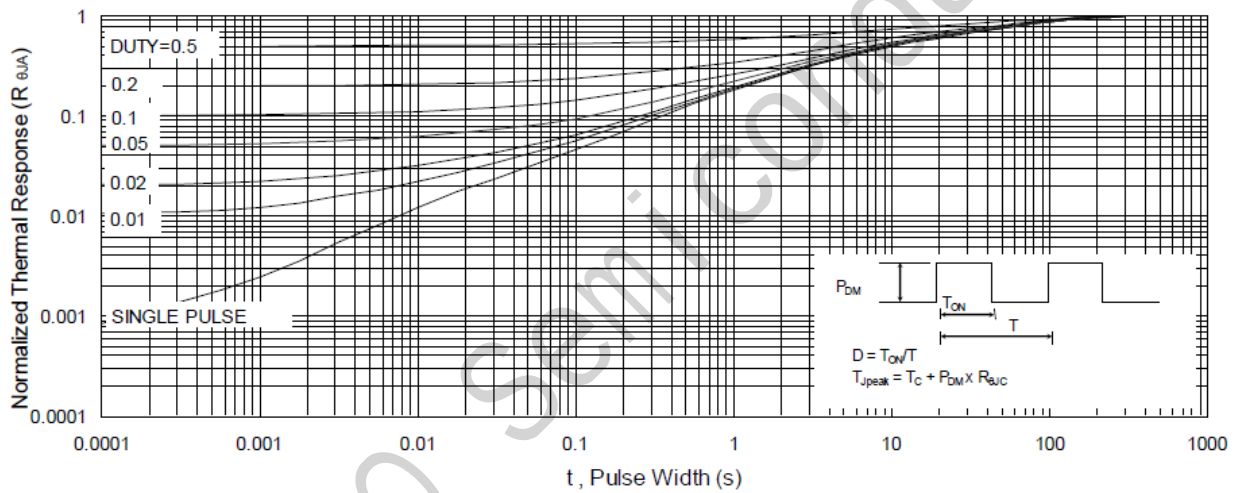
On-Resistance vs. Junction Temperature



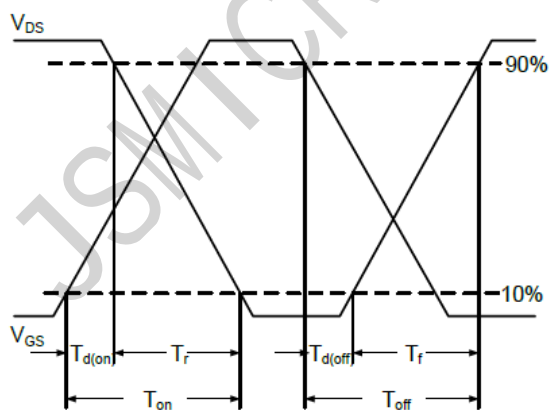
Capacitance



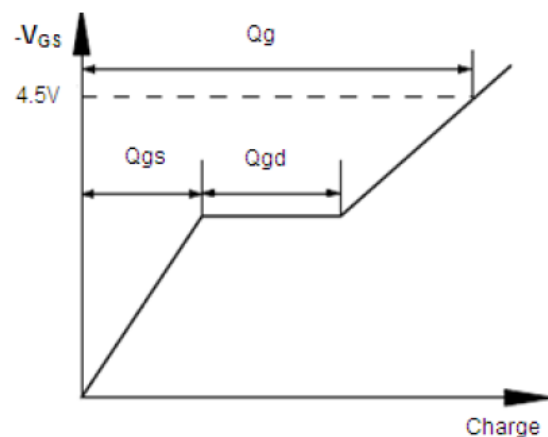
Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient

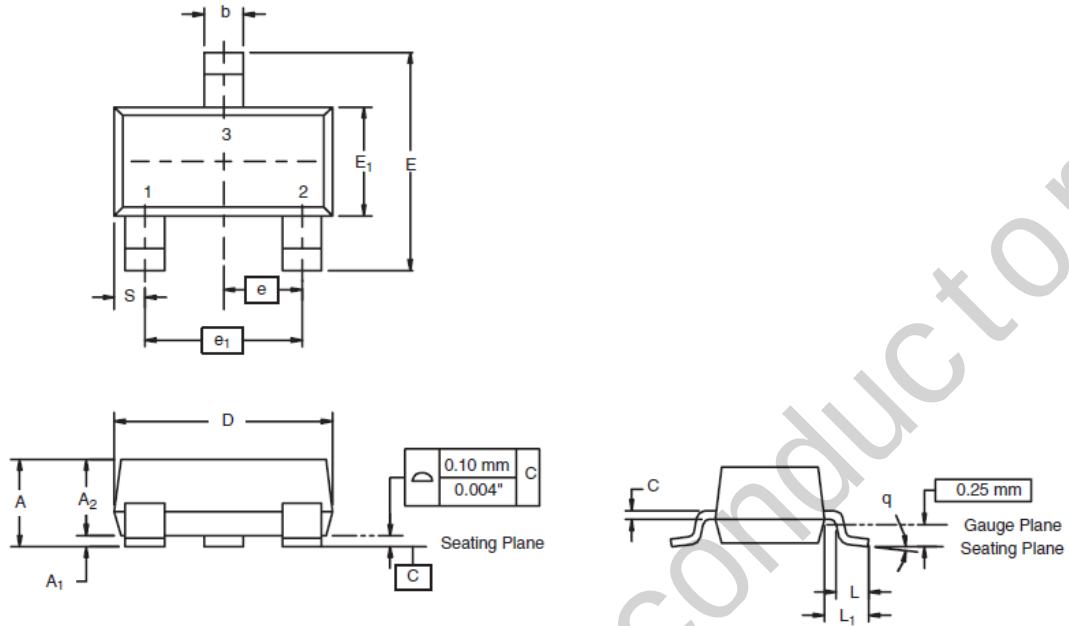


Switching Time Waveforms



Gate Charge Waveform

● Package Information



Dim	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	0.89	1.12	0.035	0.044
A ₁	0.01	0.10	0.0004	0.004
A ₂	0.88	1.02	0.0346	0.040
b	0.35	0.50	0.014	0.020
c	0.085	0.18	0.003	0.007
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E ₁	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 Ref	
e ₁	1.90 BSC		0.0748 Ref	
L	0.40	0.60	0.016	0.024
L ₁	0.64 Ref		0.025 Ref	
S	0.50 Ref		0.020 Ref	
q	3°	8°	3°	8°