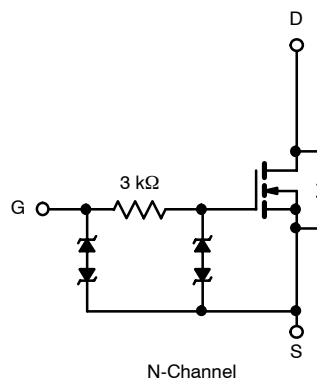
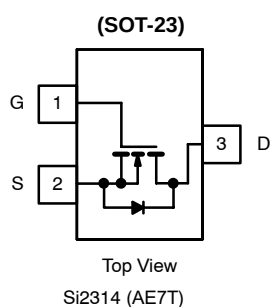


N-Channel 20-V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.033 @ $V_{GS} = 4.5$ V	4.9
	0.040 @ $V_{GS} = 2.5$ V	4.4
	0.051 @ $V_{GS} = 1.8$ V	3.9



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	5 sec	Steady State	Unit
Drain-Source Voltage		V _{DS}	20		V
Gate-Source Voltage		V _{GS}	± 12		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	4.9	3.77	A
	T _A = 70°C		3.9	3.0	
Pulsed Drain Current ^b		I _{DM}	15		
Avalanche Current ^b	L = 0.1 mH	I _{AS}	15		
Single Avalanche Energy		E _{AS}	11.25		mJ
Continuous Source Current (Diode Conduction) ^a		I _S	1.0		A
Power Dissipation ^a	T _A = 25°C	P _D	1.25	0.75	W
	T _A = 70°C		0.80	0.48	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	−55 to 150		°C

THERMAL RESISTANCE RATINGS

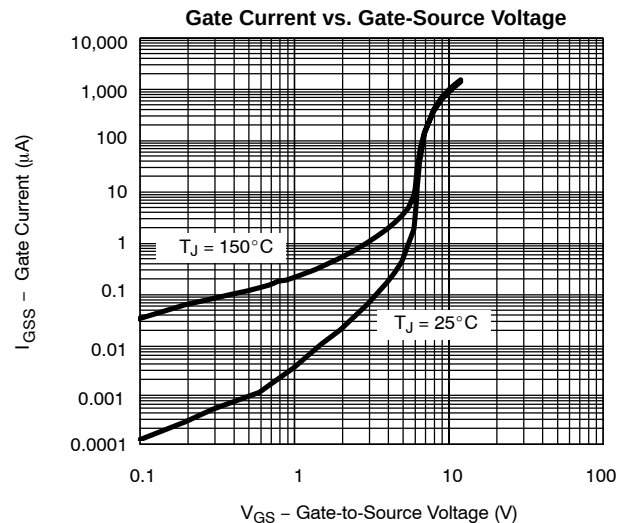
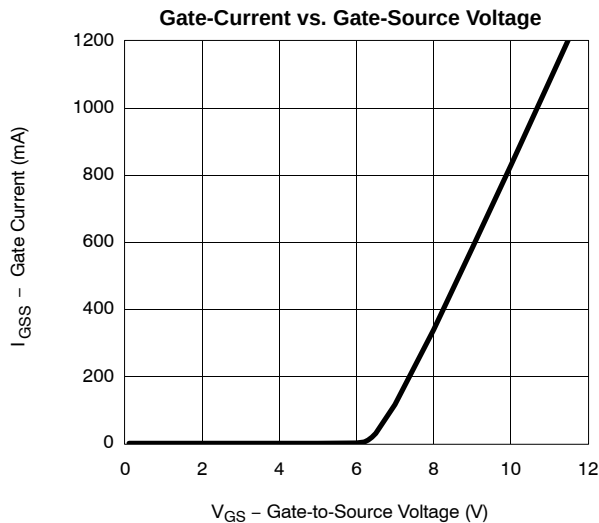
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 5$ sec	R_{thJA}	75	100	$^\circ\text{C/W}$
	Steady State		120	166	
Maximum Junction-to-Foot	Steady State	R_{thJF}	40	50	

SPECIFICATIONS (T _A = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.45		0.95	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±4.5 V			±1.5	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20 V, V _{GS} = 0 V			1	
		V _{DS} = 20 V, V _{GS} = 0 V, T _J = 70°C			75	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≥ 10 V, V _{GS} = 4.5 V	15			A
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 5.0 A		0.027	0.033	Ω
		V _{GS} = 2.5 V, I _D = 4.5 A		0.033	0.040	
		V _{GS} = 1.8 V, I _D = 4.0 A		0.042	0.051	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 5.0 A		40		S
Diode Forward Voltage	V _{SD}	I _S = 1.0 A, V _{GS} = 0 V		0.8	1.2	V
Dynamic ^b						
Total Gate Charge	Q _g	V _{DS} = 10 V, V _{GS} = 4.5 V, I _D = 5.0 A		11.0	14.0	nC
Gate-Source Charge	Q _{gs}			1.5		
Gate-Drain Charge	Q _{gd}			2.1		
Switching						
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10 V, R _L = 10 Ω I _D ≈ 1.0 A, V _{GEN} = 4.5 V, R _g = 6 Ω		0.53	0.8	μs
Rise Time	t _r			1.4	2.2	
Turn-Off Delay Time	t _{d(off)}			13.5	20	
Fall-Time	t _f			5.9	9	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = 1.0 A, di/dt = 100 A/μs		13	25	ns

Notes

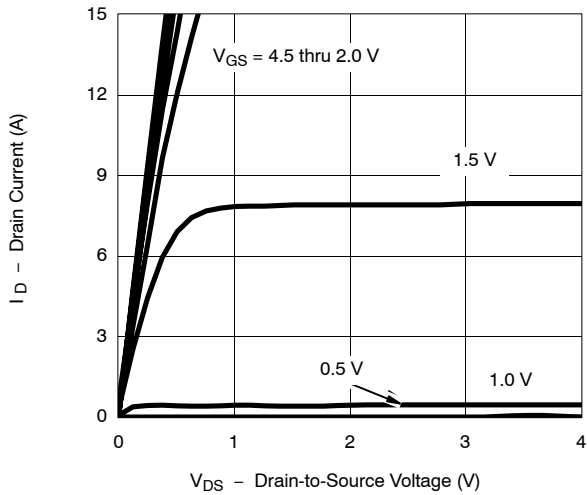
- Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

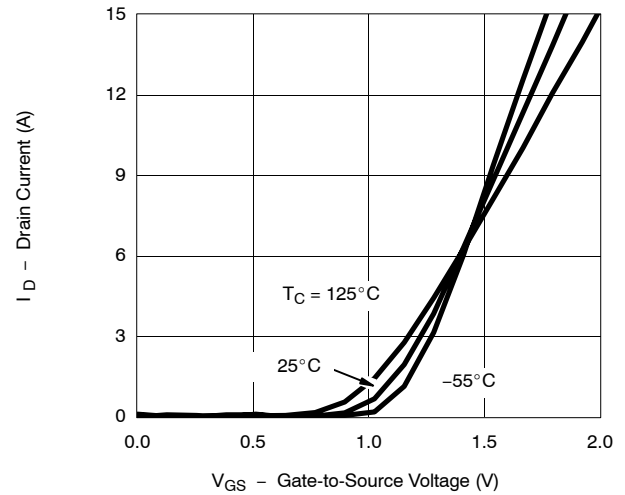


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

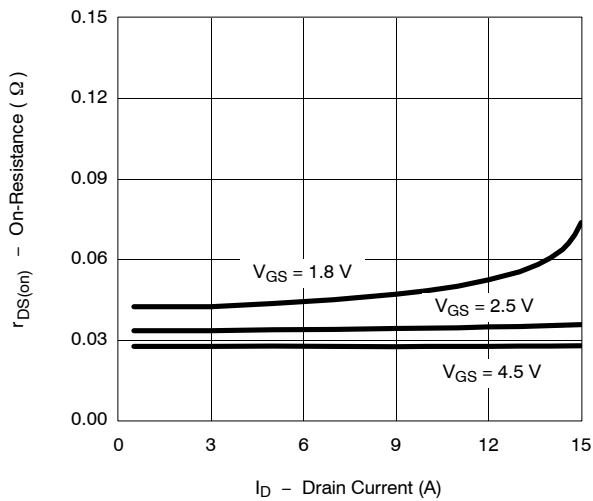
Output Characteristics



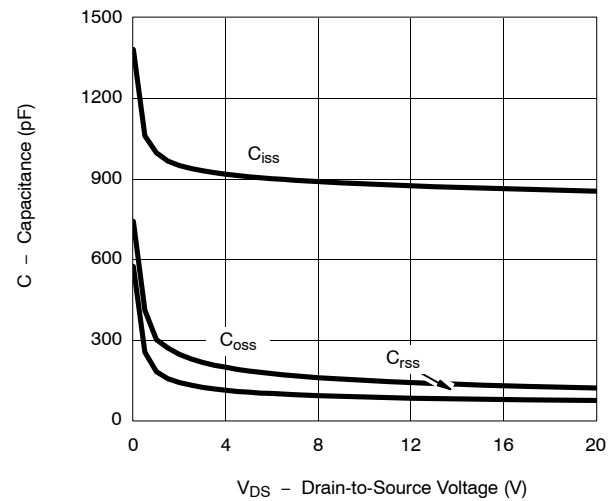
Transfer Characteristics



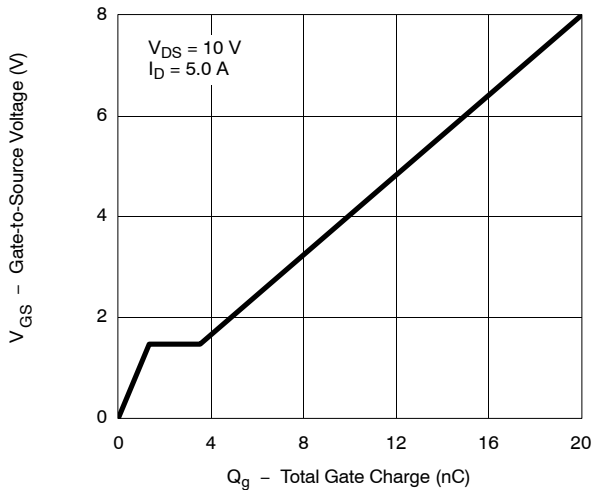
On-Resistance vs. Drain Current



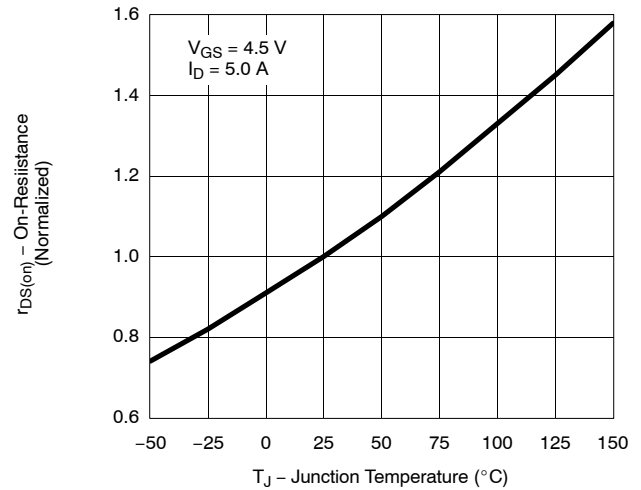
Capacitance



Gate Charge



On-Resistance vs. Junction Temperature



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

