

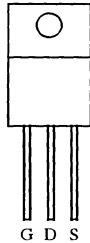
Siliconix

N-Channel Enhancement-Mode Transistor

Product Summary

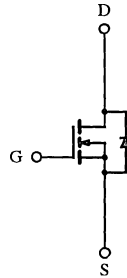
$V_{(BR)DSS}$ (V)	$r_{DS(on)}$ (Ω)	I_D (A)
100	0.075	20

TO-257AB
Hermetic Package



Top View

Case Isolated



N-Channel MOSFET

Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$)	I_D	$T_C = 25^\circ\text{C}$	A
		$T_C = 100^\circ\text{C}$	
Pulsed Drain Current	I_{DM}	80	
Maximum Power Dissipation	P_D	$T_C = 25^\circ\text{C}$	W
		$T_C = 100^\circ\text{C}$	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Lead Temperature ($1/16''$ from case for 10 sec.)	T_L	300	

6
N-/P-Channel
MOSFETs

Thermal Resistance Ratings

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient	R_{thJA}		80	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Case	R_{thJC}		2.1	
Case-to-Sink	R_{thCS}	1.0		

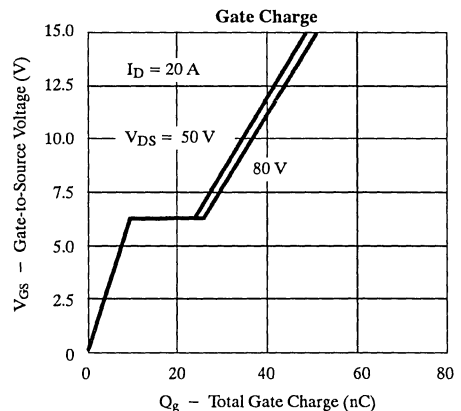
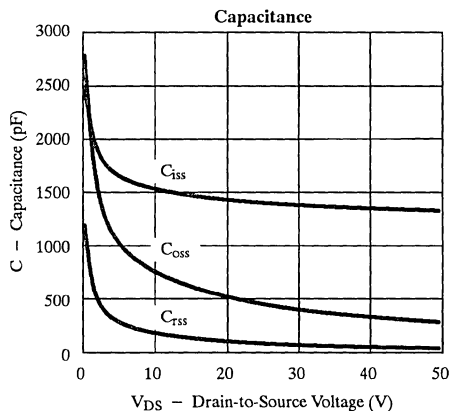
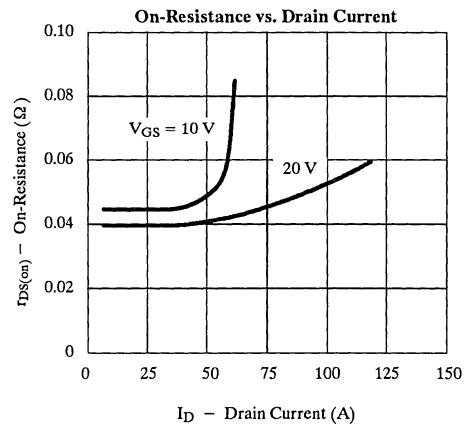
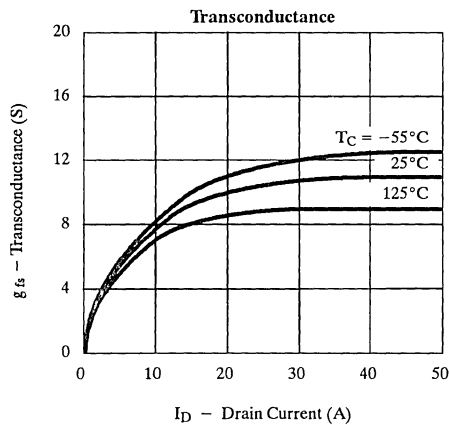
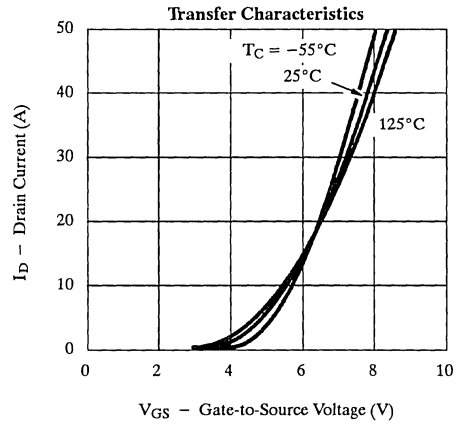
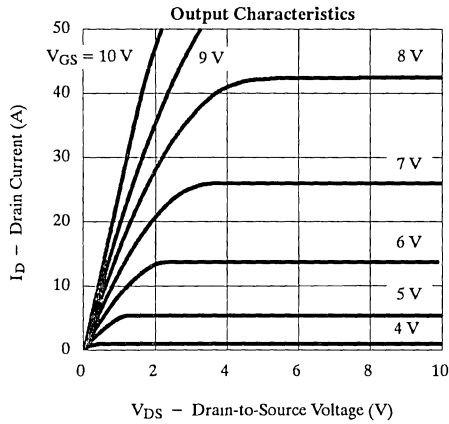
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Limit			Unit
			Min	Typ ^a	Max	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	2.0		4.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}$			25	μA
		$V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}, T_J = 125^\circ\text{C}$			250	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} = 10\text{ V}, V_{GS} = 10\text{ V}$	20			A
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 12\text{ A}$		0.06	0.075	Ω
		$V_{GS} = 10\text{ V}, I_D = 12\text{ A}, T_J = 125^\circ\text{C}$		0.11	0.14	
Forward Transconductance ^b	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 12\text{ A}$	5.0	8.0		S
Dynamic						
Input Capacitance	C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		1400		pF
Output Capacitance	C_{oss}			480		
Reverse Transfer Capacitance	C_{rss}			110		
Total Gate Charge ^c	Q_g	$V_{DS} = 50\text{ V}, V_{GS} = 10\text{ V}, I_D = 20\text{ A}$		35	50	nC
Gate-Source Charge ^c	Q_{gs}			10	20	
Gate-Drain Charge ^c	Q_{gd}			18	25	
Turn-On Delay Time ^c	$t_{d(on)}$	$V_{DD} = 50\text{ V}, R_L = 2.5\ \Omega$ $I_D \approx 20\text{ A}, V_{GEN} = 10\text{ V}, R_G = 4.7\ \Omega$		13	30	ns
Rise Time ^c	t_r			85	120	
Turn-Off Delay Time ^c	$t_{d(off)}$			35	80	
Fall Time ^c	t_f			75	95	
Source-Drain Diode Ratings and Characteristics						
Continuous Current	I_S				20	A
Pulsed Current	I_{SM}				80	
Diode Forward Voltage ^b	V_{SD}	$I_F = 20\text{ A}, V_{GS} = 0\text{ V}$			2.5	V
Reverse Recovery Time	t_{rr}	$I_F = 20\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		150	400	ns
Reverse Recovery Charge	Q_{rr}				0.5	

Notes:

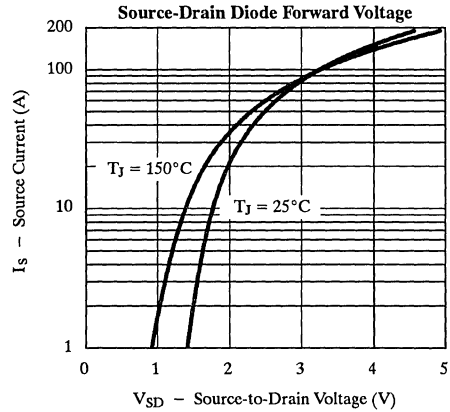
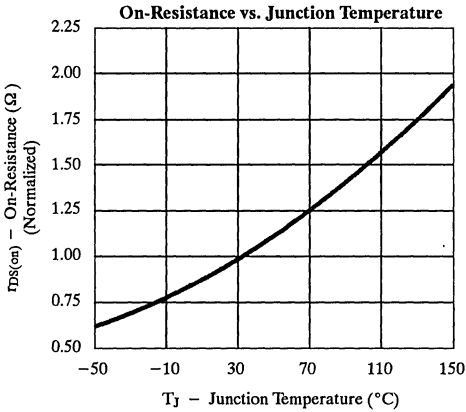
- For design aid only; not subject to production testing.
- Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
- Independent of operating temperature.

Typical Characteristics (25°C Unless Otherwise Noted)



2N7085

Typical Characteristics (25°C Unless Otherwise Noted)



Thermal Ratings

