

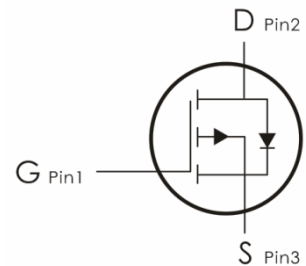
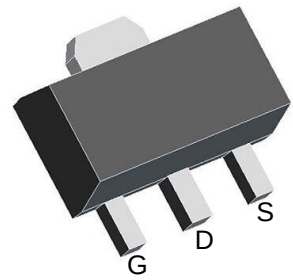
Description:

This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=60V, I_D=10A, R_{DS(on)} < 58m\Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C=25^\circ C$	10	A
	Continuous Drain Current- $T_C=100^\circ C$	8	
I_{DM}^{****}	Pulsed Drain Current	20	
I_S	Continuous-Source Current	20	A
P_D	Power Dissipation	35	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case**	3.5	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance Junction to mbient**	50	$^\circ C/W$

Package Marking and Ordering Information:

Part NO.	Marking	Package
WE060NG	E060N	SOT-89

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	60	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =48V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics ³						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1	---	2	V
R _{DS(ON)} ^a	Drain-Source On Resistance	V _{GS} =10V, I _D =6A	---	50	58	m Ω
		V _{GS} =4.5V, I _D =1A	---	58	68	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	---	651	---	pF
C _{Oss}	Output Capacitance		---	28	---	
C _{rss}	Reverse Transfer Capacitance		---	26	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =30V, I _D =6A, R _G =4.5Ω V _{GS} =10V	---	5	---	ns
t _r	Rise Time		---	21	---	ns
t _{d(off)}	Turn-Off Delay Time		---	15	---	ns
t _f	Fall Time		---	23	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =30V, I _D =6A	---	12	---	nC
Q _{gs}	Gate-Source Charge		---	3	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	1.5	---	nC
Drain-Source Diode Characteristics						
Symbol	Parameter	Conditions	Min	Typ	Max	Units
V _{SD} ^a	Source-Drain Diode Forward Voltage	V _{GS} =0V, I _S =6A	---	---	1.3	V

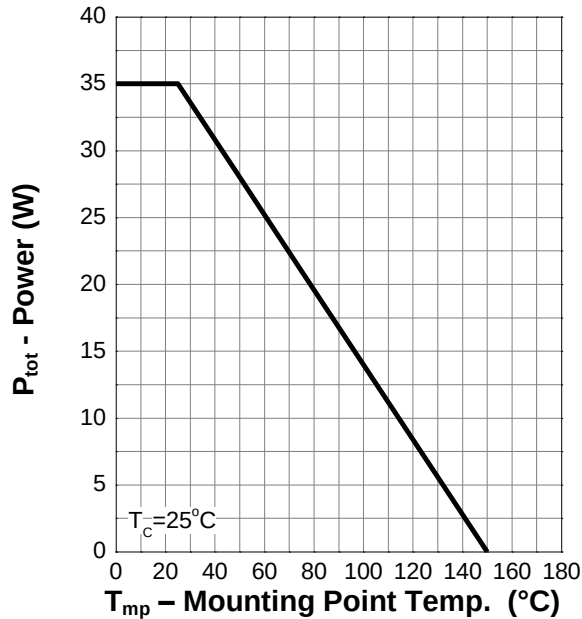
T_{rr}	Reverse Recovery Time	$I_{DS} = 6\text{ A}, V_{GS} = 0\text{ V}$ $di_{SD}/dt = 100\text{ A}/\mu\text{s}$		26	---	NS
Q_{rr}	Reverse Recovery Charge			2.8	---	NC

Notes:

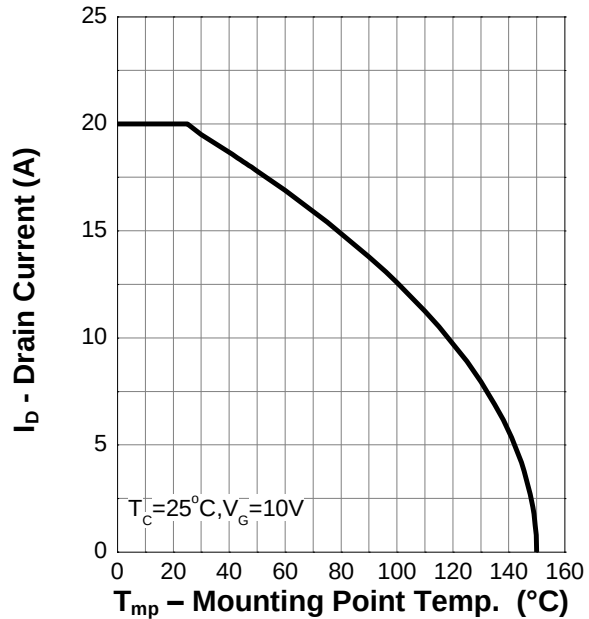
- * Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$
- ** Mounted on Large Heat Sink
- *** limited by bonding wire
- a : Pulse test ; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$
- b : Guaranteed by design, not subject to production testing

Typical Characteristics: ($T_c = 25^\circ\text{C}$ unless otherwise noted)

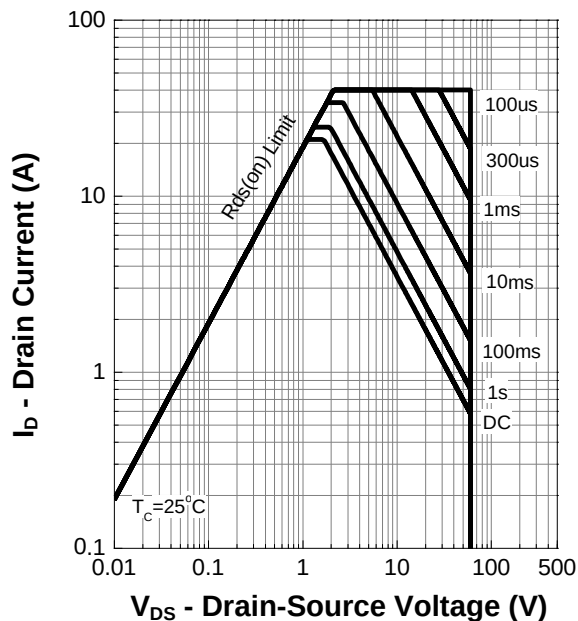
Power Capability



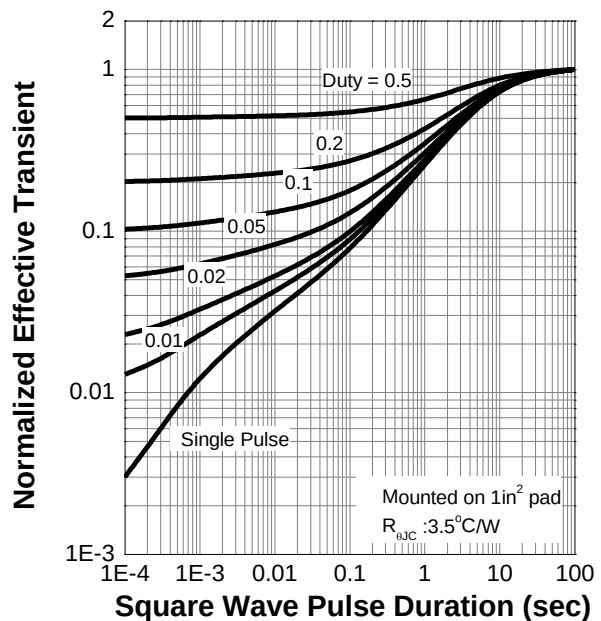
Current Capability



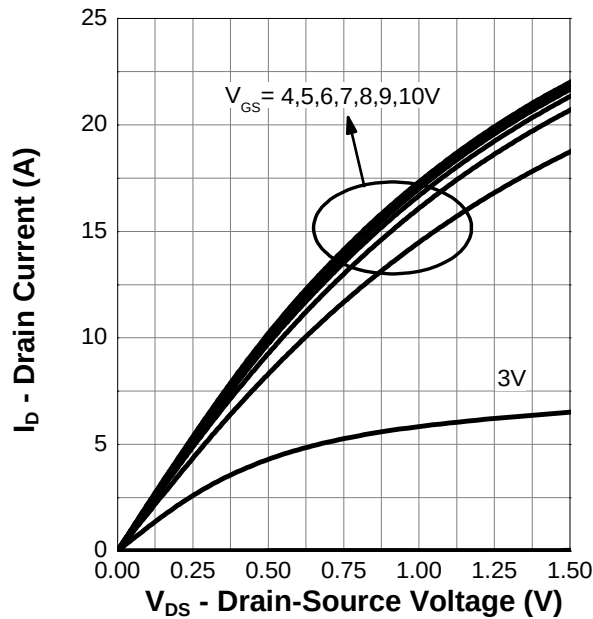
Safe Operating Area



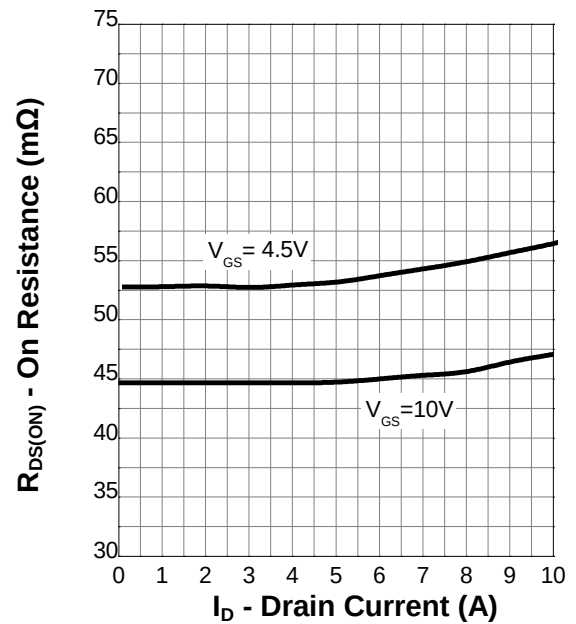
Transient Thermal Impedance



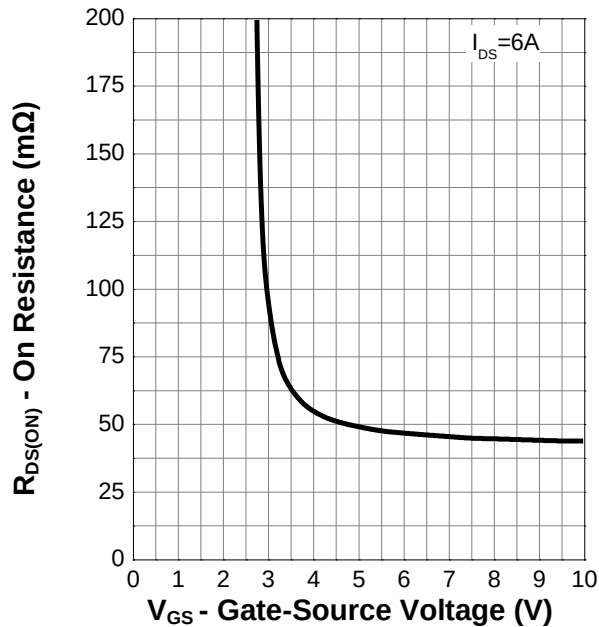
Output Characteristics



On Resistance



Transfer Characteristics



Normalized Threshold Voltage

