

N-Channel Enhancement Mode MOSFET

Product Information

Features

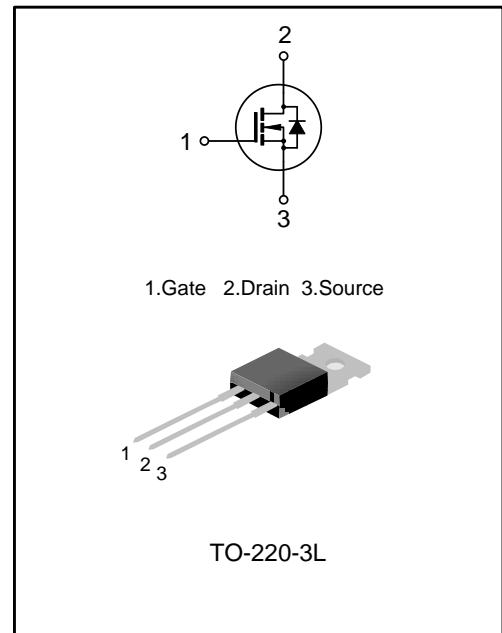
- Surface-mounted package
- Super Trench
- Advanced trench cell design

Applications

- LCD TV appliances
- LCDM appliances
- High power inverter system

Quick reference

- $BV \geq 150\text{ V}$
- $P_{tot} \leq 156\text{ W}$
- $I_D \leq 100\text{ A}$
- $R_{DS(ON)} \leq 6.5\text{m}\Omega @ V_{GS} = 10\text{ V}$
- $R_{DS(ON)} \leq 7.5\text{m}\Omega @ V_{GS} = 6\text{ V}$



Package Marking and Ordering Information:

Marking	Part #	Package	Packing	Qty.
SR060N15T	SR060N15T	TO-220	Tube	50 units

Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	$T_C = 25\text{ }^\circ\text{C}$	150	-	V
V_{GS}	Gate-Source Voltage	$T_C = 25\text{ }^\circ\text{C}$	-	± 25	V
$I_{D^{*},***}$	Drain Current (DC)	$T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	100	A
		$T_C = 100\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	86	A
$I_{DM^{*},***}$	Drain Current (Pulsed)	$T_C = 25\text{ }^\circ\text{C}, V_{GS} = 10\text{ V}$	-	180	A
P_{tot}	Drain power dissipation	$T_C = 25\text{ }^\circ\text{C}$	-	156	W
T_{stg}	Storage Temperature		-55	150	$^\circ\text{C}$
T_J	Junction Temperature		-	150	$^\circ\text{C}$
I_S	Continuous-Source Current	$T_C = 25\text{ }^\circ\text{C}$	-	100	A
E_{AS}	Single Pulsed Avalanche Energy	$V_{DD}=50\text{V}, L=1.0\text{mH}$	-	1250	mJ
$R_{\theta JA}^{**}$	Thermal Resistance- Junction to Ambient		-	62.5	$^\circ\text{C/W}$
$R_{\theta JC}^{**}$	Thermal Resistance- Junction to Case		-	0.85	

Notes :

- * Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$
- ** Surface Mounted on minimum footprint pad area.
- *** Limited by bonding wire

Electrical Characteristics ($T_A=25^\circ$ Unless Otherwise Noted)

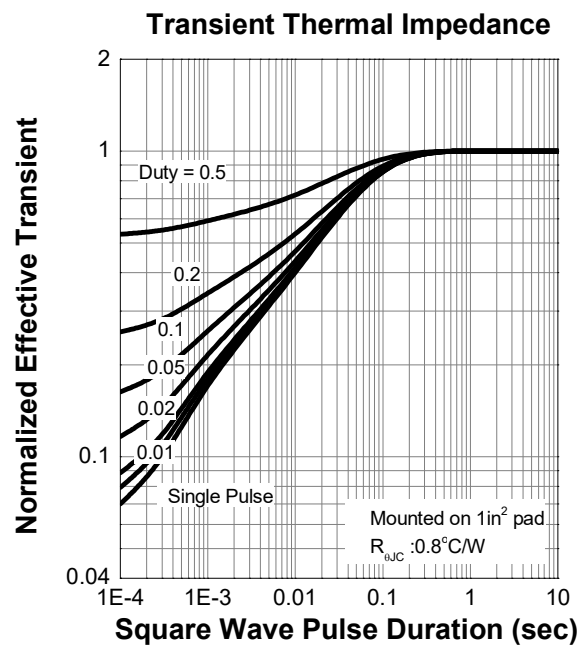
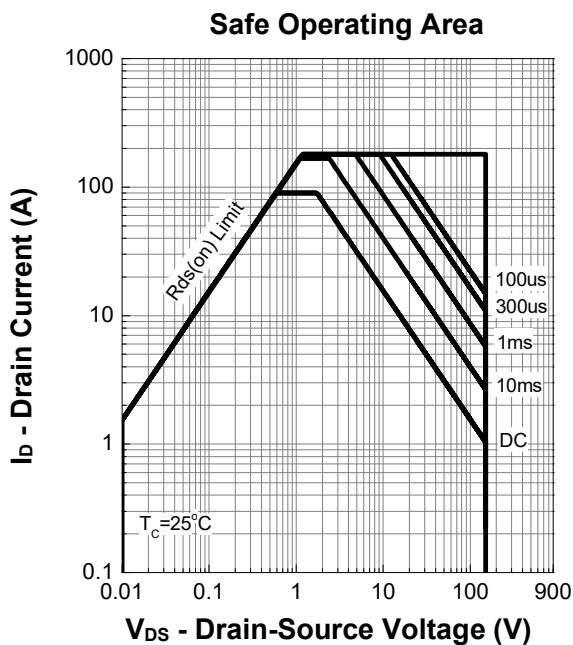
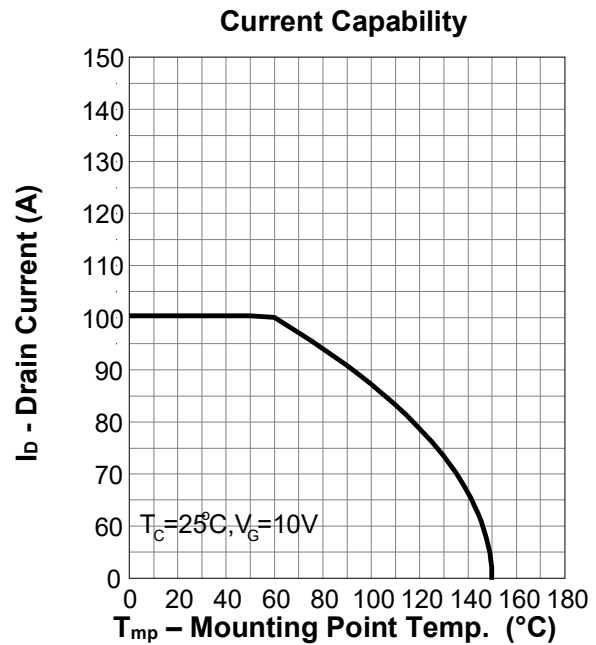
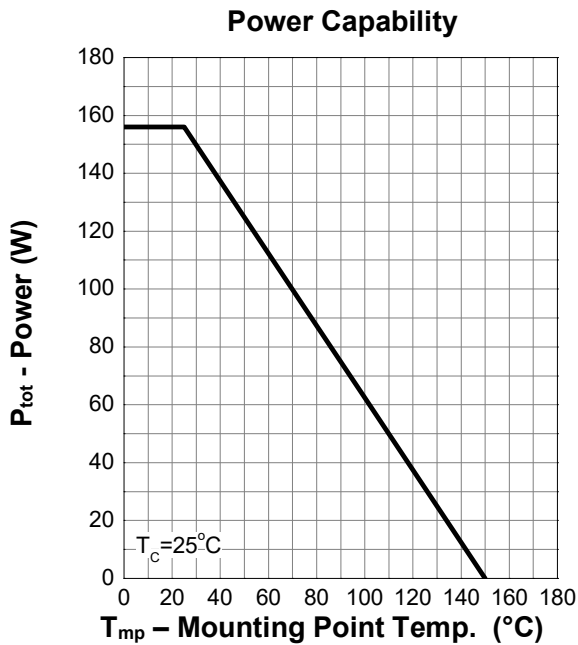
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_{DS} = 250\ \mu\text{A}$	150	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_{DS} = 250\ \mu\text{A}$	2	-	4	V
I_{DSS}	Drain Leakage Current	$V_{DS} = 120\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	μA
I_{GSS}	Gate Leakage Current	$V_{GS} = 0\text{ V}, V_{GS} = \pm 25\text{ V}$	-	-	± 100	nA
$R_{DS(on)}^a$	On-State Resistance	$V_{GS} = 10\text{ V}, I_{DS} = 30\text{ A}$	-	5.5	6.5	m Ω
		$V_{GS} = 6\text{ V}, I_{DS} = 20\text{ A}$	-	6.5	7.5	
Diode Characteristics						
V_{SD}^a	Diode Forward Voltage	$I_{SD} = 50\text{ A}, V_{GS} = 0\text{ V}$	-	0.7	1.3	V
t_{rr}	Reverse Recovery Time	$I_{DS} = 50\text{ A}, V_{GS} = 0\text{ V}$ $di_{SD}/dt = 100\text{ A}/\mu\text{s}$	-	112	-	nS
Q_{rr}	Reverse Recovery Charge		-	475	-	nC
Dynamic Characteristics ^b						
C_{iss}	Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 75\text{ V}$ Frequency = 1 MHz	-	9019	-	pF
C_{oss}	Output Capacitance		-	583	-	
C_{rss}	Reverse Transfer Capacitance		-	63	-	
$t_{d(on)}$	Turn-on Delay Time	$V_{DS} = 75\text{ V}, V_{GEN} = 10\text{ V},$ $R_G = 3.9\ \Omega, R_L = 1.5\ \Omega,$ $I_{DS} = 50\text{ A}$	-	23	-	nS
t_r	Turn-on Rise Time		-	66	-	
$t_{d(off)}$	Turn-off Delay Time		-	89	-	
t_f	Turn-off Fall Time		-	70	-	
Gate Charge Characteristics ^b						
Q_g	Total Gate Charge	$V_{DS} = 75\text{ V}, V_{GS} = 10\text{ V},$ $I_{DS} = 50\text{ A}$	-	131	-	nC
Q_{gs}	Gate-Source Charge		-	47	-	
Q_{gd}	Gate-Drain Charge		-	24	-	

Notes :

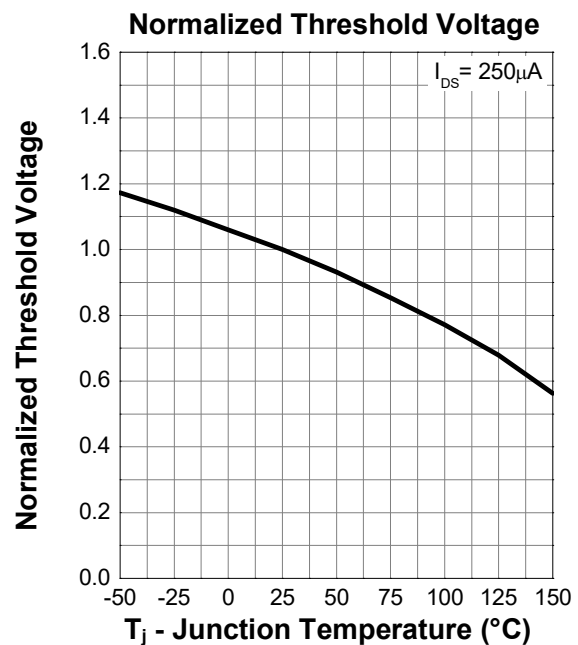
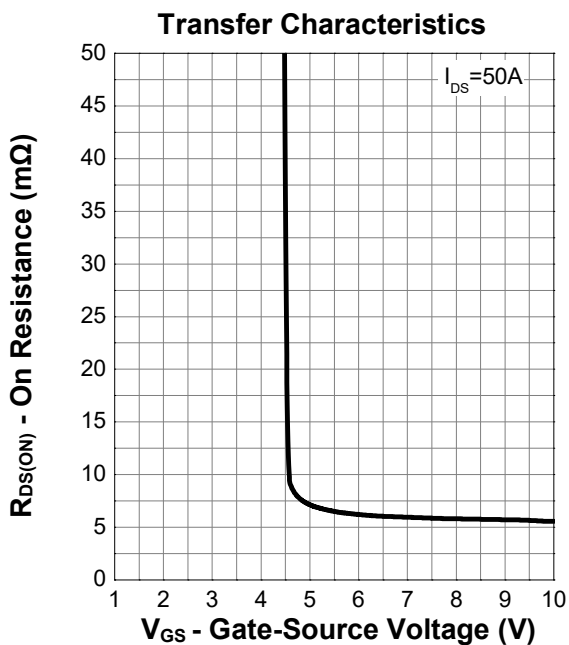
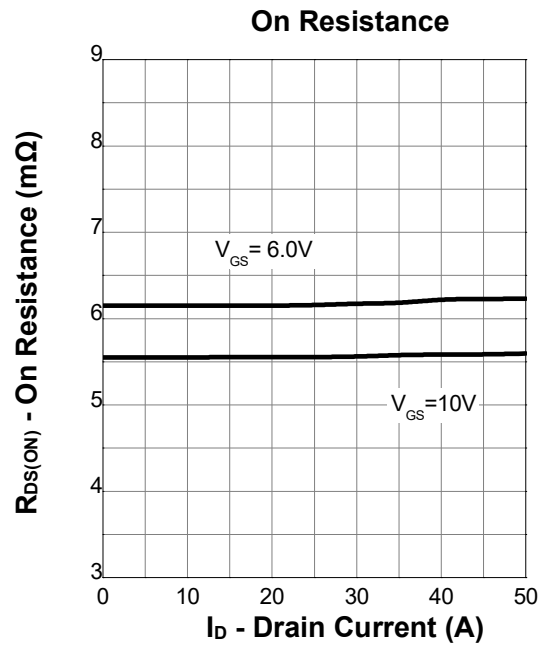
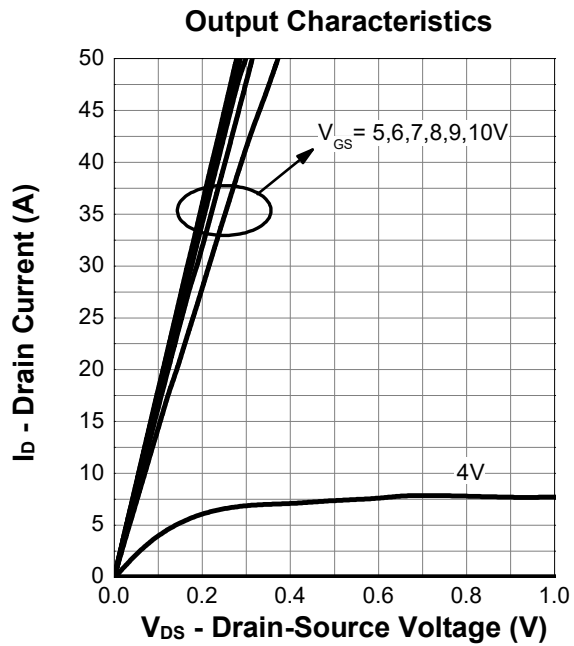
a : Pulse test ; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

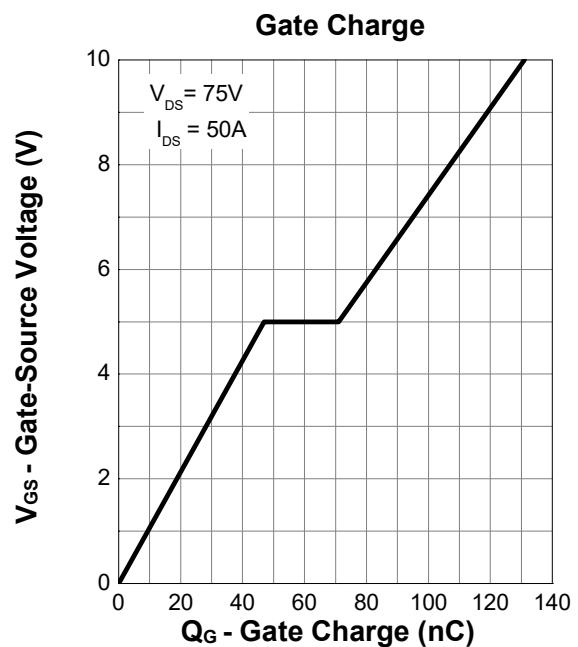
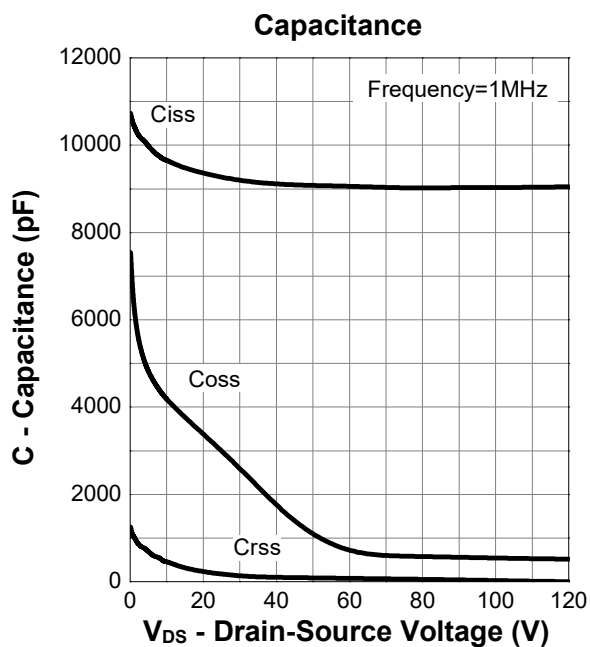
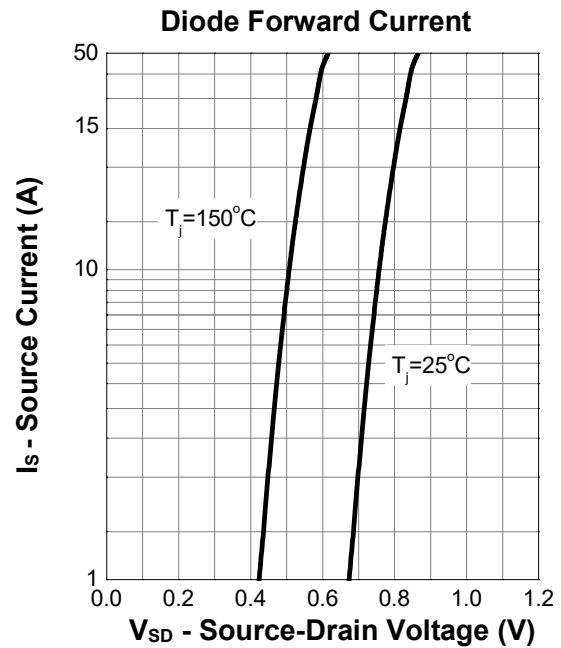
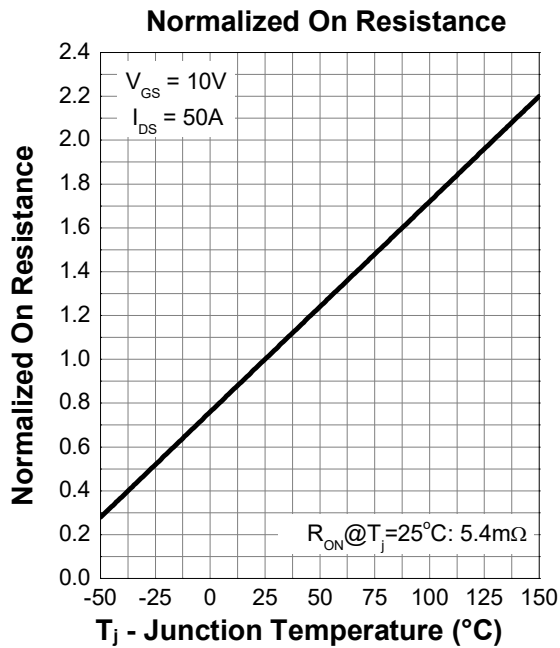
Typical Characteristics



Typical Characteristics (cont.)

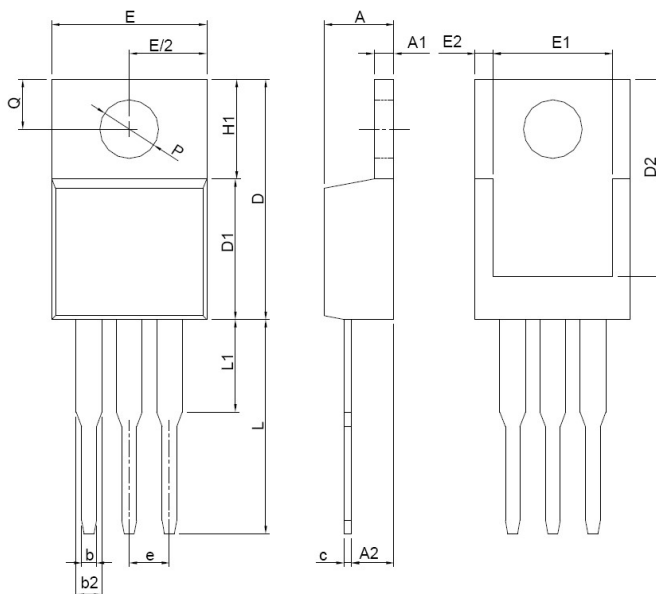


Typical Characteristics (cont.)



Package Dimensions

TO-220-3L



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	3.56	4.83
A1	0.51	1.40
A2	2.03	2.92
b	0.38	1.02
b2	1.14	1.78
c	0.36	0.61
D	14.22	16.51
D1	8.38	9.02
D2	12.19	12.88
E	9.65	10.67
E1	6.86	8.89
E2	0.76BSC	
e	2.54BSC	
H1	5.84	6.86
L	12.70	14.73
L1	6.35BSC	
P	3.53	4.09
Q	2.54	3.43