



### Features

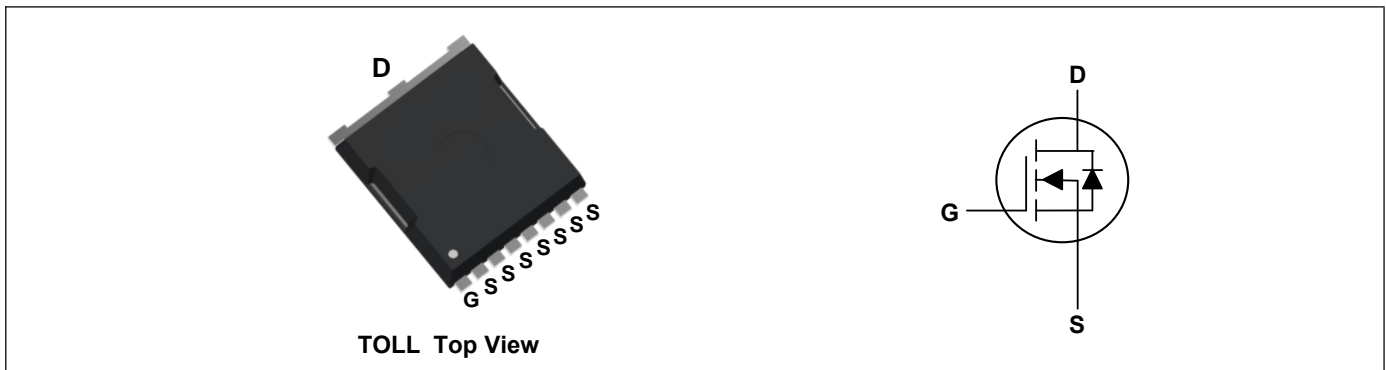
- Advanced Shield Gate Trench technology
- Super Low Gate Charge
- High-Speed Switching
- 100% EAS Guaranteed
- Green Device Available

### Product Summary

$V_{DS}$	100	V
$I_D$	300	A
$R_{DS(ON)}$ Typ (at $V_{GS}=10V$ )	1.0	m $\Omega$
$R_{DS(ON)}$ Typ (at $V_{GS}=4.5V$ )	1.3	m $\Omega$

### Applications

- High Frequency Point-of-Load, Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch



### Absolute Maximum Ratings ( $T_C=25^\circ\text{C}$ , unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D@T_C=25^\circ\text{C}$	300	A
Continuous Drain Current <sup>1</sup>	$I_D@T_C=100^\circ\text{C}$	282	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	1200	A
Single Pulse Avalanche Energy <sup>3</sup>	$E_{AS}$	2592	mJ
Total Power Dissipation <sup>4</sup>	$P_D$	500	W
Storage Temperature Range	$T_{STG}$	-55 to 150	$^\circ\text{C}$
Operating Junction Temperature Range	$T_J$	-55 to 150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient <sup>1</sup>	$R_{\theta JA}$	---	40	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction-Case <sup>1</sup>	$R_{\theta JC}$	---	0.25	$^\circ\text{C}/\text{W}$

**Electrical Characteristics (T<sub>J</sub>=25°C, unless otherwise noted)**

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	100	---	---	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =30A	---	1.0	1.2	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =20A	---	1.3	2.0	mΩ
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250μA	2.0	---	4.0	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =80V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	---	---	1	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	---	---	±100	nA
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =10V, I <sub>D</sub> =30A	---	280	---	nC
Gate-Source Charge	Q <sub>gs</sub>		---	73	---	
Gate-Drain Charge	Q <sub>gd</sub>		---	85	---	
Turn-On Delay Time	T <sub>d(on)</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =10V, R <sub>G</sub> =3.9Ω, I <sub>D</sub> =30A	---	36	---	ns
Rise Time	T <sub>r</sub>		---	85	---	
Turn-Off Delay Time	T <sub>d(off)</sub>		---	182	---	
Fall Time	T <sub>f</sub>		---	113	---	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f=1MHz	---	13765	---	pF
Output Capacitance	C <sub>oss</sub>		---	2155	---	
Reverse Transfer Capacitance	C <sub>rss</sub>		---	100	---	

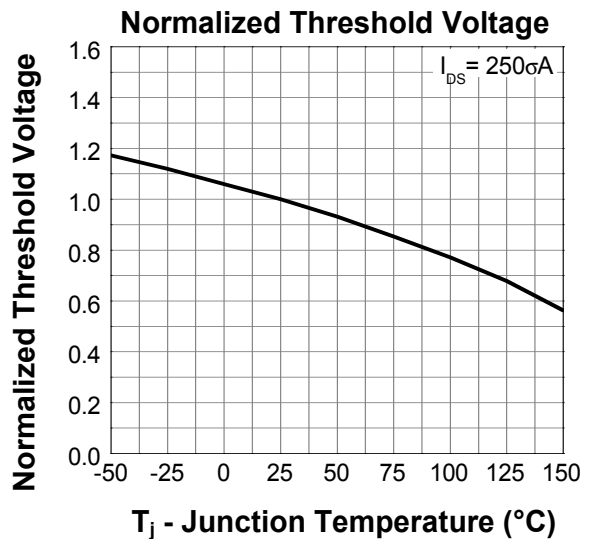
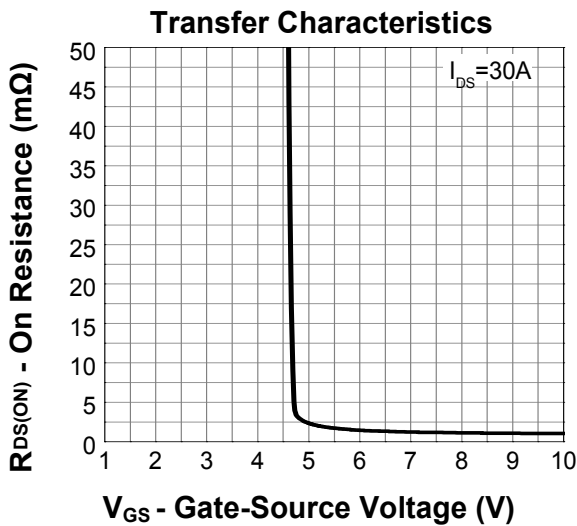
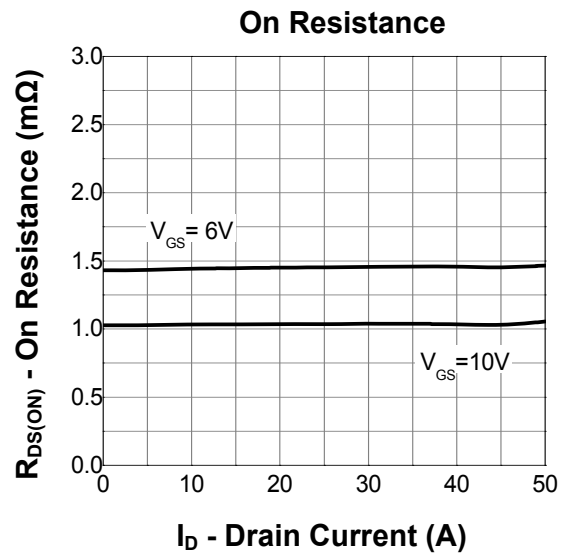
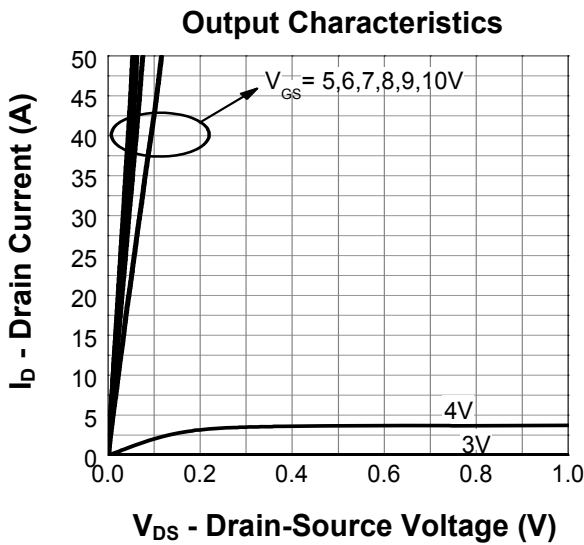
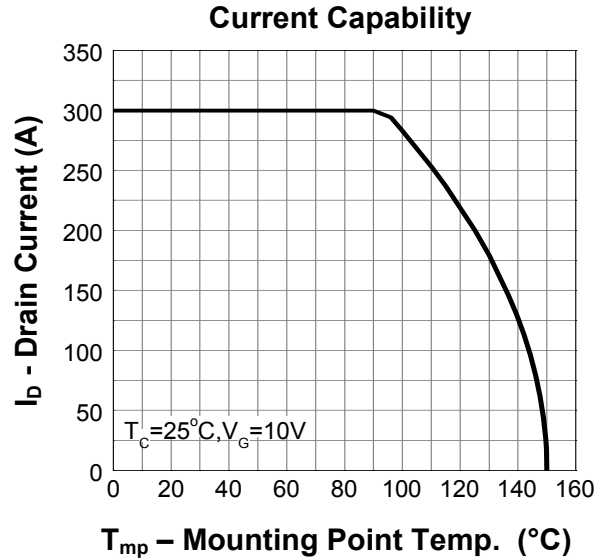
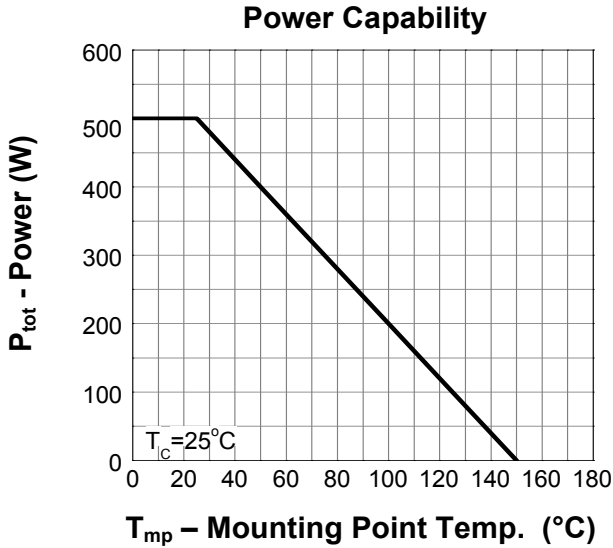
**Drain-Source Diode Characteristics**

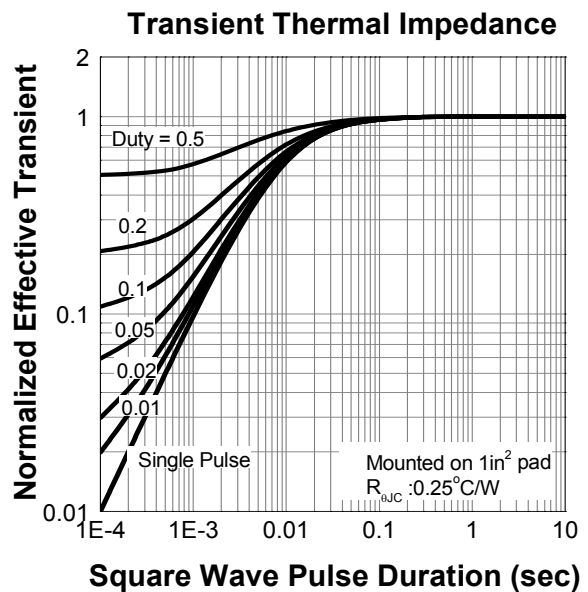
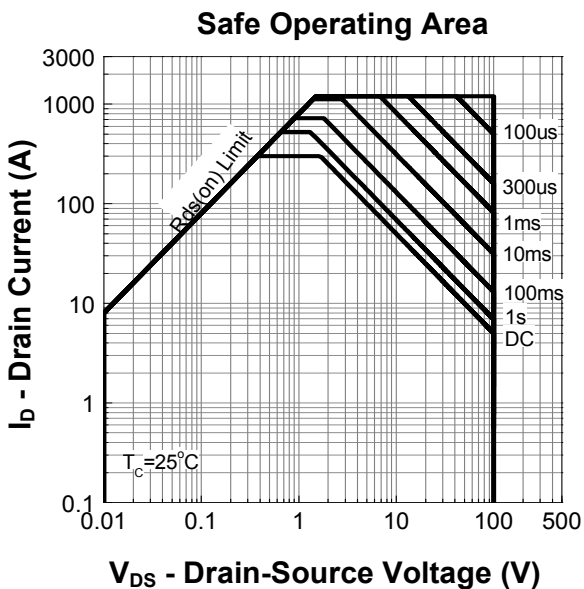
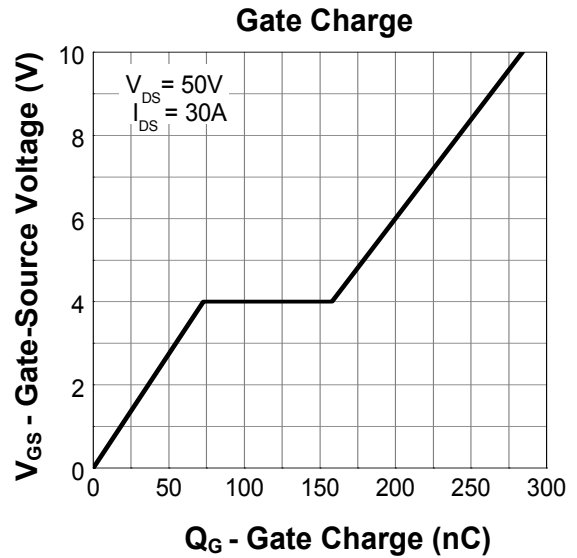
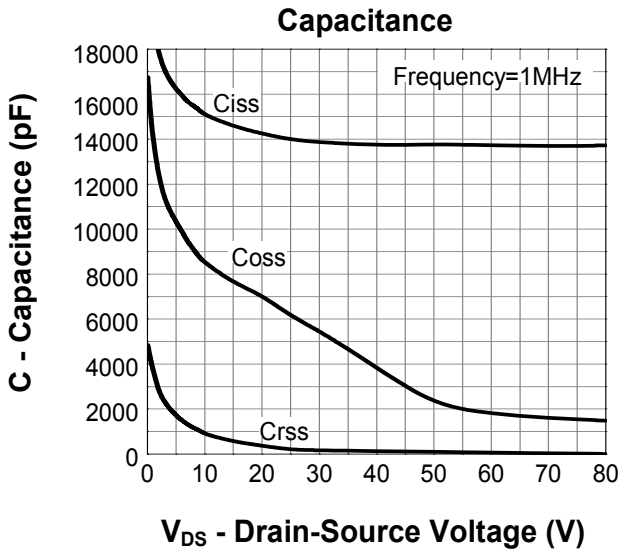
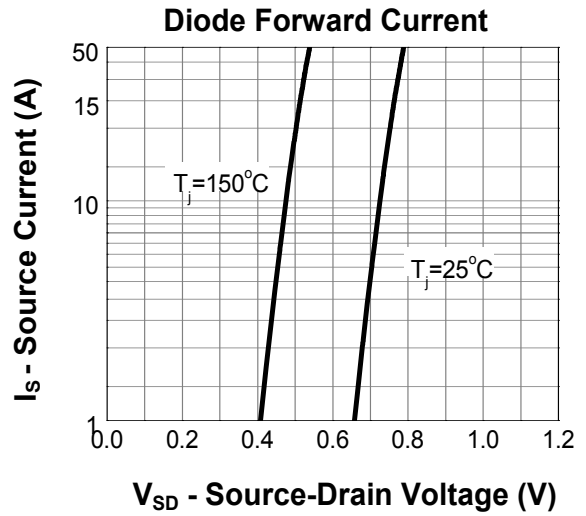
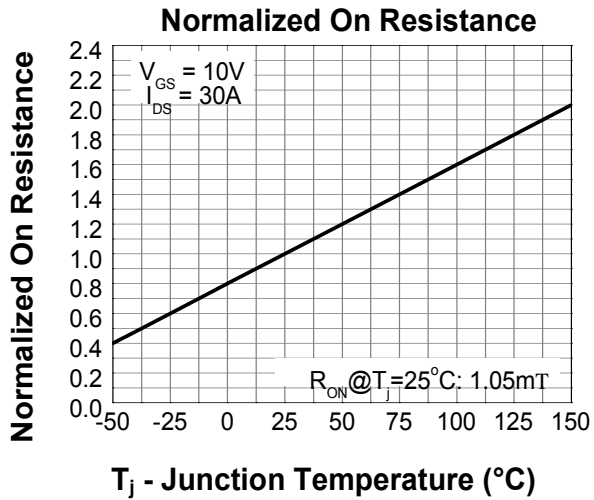
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage <sup>2</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =30A, T <sub>J</sub> =25°C	---	---	1.3	V
Reverse recovery time	t <sub>rr</sub>	I <sub>F</sub> =30A, diF/dt=100A/μs	---	121	---	ns
Reverse recovery charge	Q <sub>rr</sub>		---	405	---	nC

**Note:**

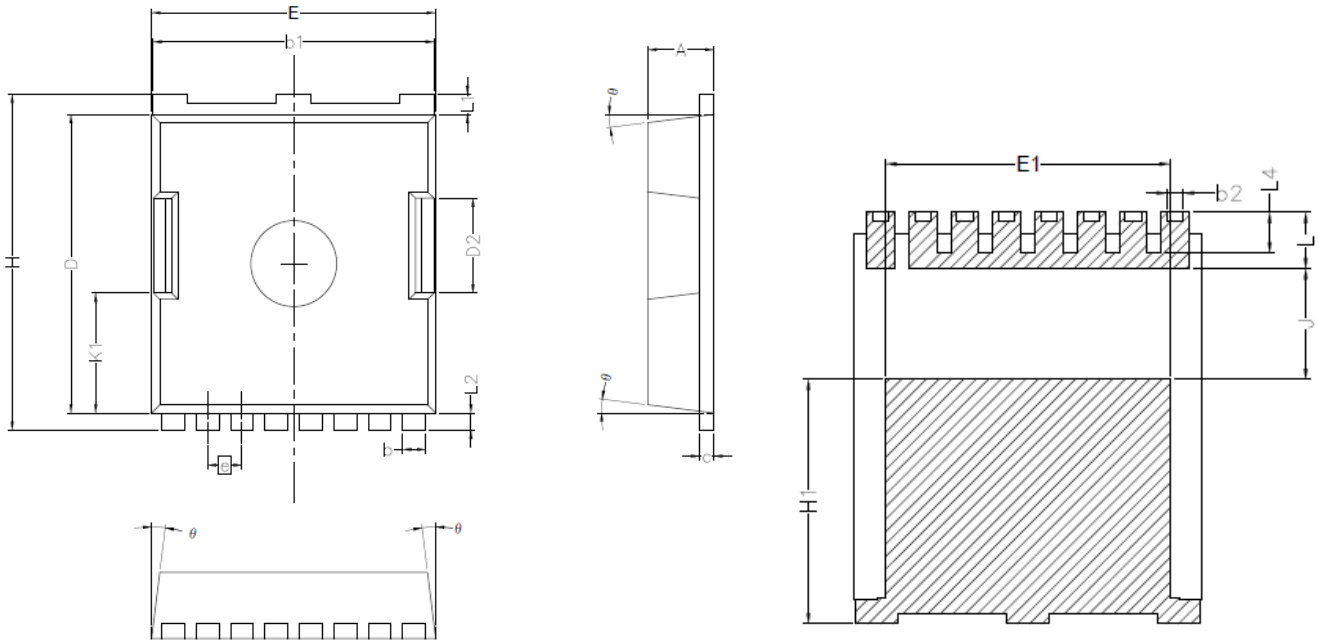
- 1.The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The EAS data shows Max. rating . The test condition is V<sub>DD</sub>=50V,L=1.0mH

**Typical Characteristics**





**TOLL Package Outline Dimensions**



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	2.20	2.40
b	0.90	0.90
b1	9.70	9.90
b2	0.42	0.50
c	0.40	0.60
D	10.28	10.58
D2	3.10	3.50
E	9.70	10.10
E1	7.90	8.30
e	1.20BSC	
H	11.48	11.88
H1	6.75	7.15
N	8	
J	3.00	3.30
K1	3.98	4.38
L	1.40	1.80
L1	0.60	0.80
L2	0.50	0.70
L4	1.00	1.30
$\theta$	4°	10°

## Printing Information

ATC           =====Brand

XXXXXXX       =====Material Code

XXYY           =====XX Representative Year  
                  YY Representative Weeks