



TSM2832

20V N-Channel Enhancement Mode MOSFET

SOT-89



Pin assignment:

1. Gate
2. Drain
3. Source

$V_{DS} = 20V$

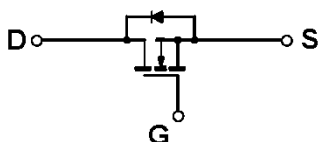
$R_{DS(on)}, V_{GS} @ 4.5V, I_{DS} @ 3.6A = 60m\Omega$

$R_{DS(on)}, V_{GS} @ 2.5V, I_{DS} @ 3.1A = 90m\Omega$

Features

- Advanced trench process technology
- Excellent thermal and electrical capabilities
- High density cell design for ultra low on-resistance
- 2.5V operating voltage

Block Diagram



Ordering Information

Part No.	Packing	Package
TSM2832CY	Tape & Reel 1kpcs per reel	SOT-89

Absolute Maximum Rating ($T_a = 25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20V	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	3.6	A
Pulsed Drain Current	I_{DM}	10	A
Maximum Power Dissipation	P_D	$T_a = 25^{\circ}C$	W
		$T_a = 75^{\circ}C$	
Operating Junction Temperature	T_J	+150	$^{\circ}C$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	- 55 to +150	$^{\circ}C$

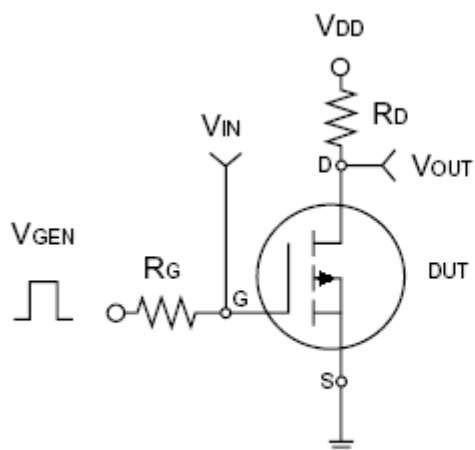
Thermal Performance

Parameter	Symbol	Limit	Unit
Lead Temperature (1/8" from case)	T_L	5	S
Junction to Ambient Thermal Resistance (PCB mounted)	$R_{\theta ja}$	65	$^{\circ}C/W$

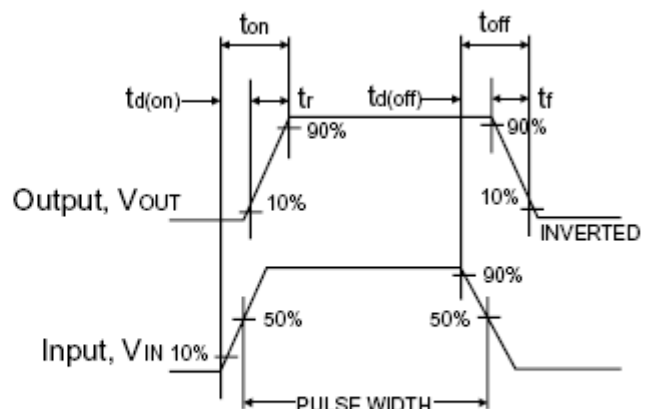
Note: Surface mounted on FR4 board $t \leq 5sec$.

Electrical Characteristics						
Rate I _D = 2.4A, (Ta = 25 °C unless otherwise noted)						
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250uA	BV _{DSS}	20	--	--	V
Drain-Source On-State Resistance	V _{GS} = 4.5V, I _D = 3.6A	R _{DS(ON)}	--	50	60	mΩ
Drain-Source On-State Resistance	V _{GS} = 2.5V, I _D = 3.1A	R _{DS(ON)}	--	75	90	
Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250uA	V _{GS(TH)}	0.45	--	--	V
Zero Gate Voltage Drain Current	V _{DS} = 20V, V _{GS} = 0V	I _{DSS}	--	--	1.0	uA
Gate Body Leakage	V _{GS} = ± 8V, V _{DS} = 0V	I _{GSS}	--	--	± 100	nA
On-State Drain Current	V _{DS} ≥ 5V, V _{GS} = 4.5V	I _{D(ON)}	6	--	--	A
Forward Transconductance	V _{DS} = 5V, I _D = 3.6A	g _{fs}	--	10	--	S
Dynamic						
Total Gate Charge	V _{DS} = 10V, I _D = 3.6A, V _{GS} = 4.5V	Q _g	--	5.2	10	nC
Gate-Source Charge		Q _{gs}	--	0.65	--	
Gate-Drain Charge		Q _{gd}	--	1.5	--	
Turn-On Delay Time	V _{DD} = 10V, R _L = 10Ω, I _D = 1A, V _{GEN} = 4.5V, R _G = 6Ω	t _{d(on)}	--	7	15	nS
Turn-On Rise Time		t _r	--	55	80	
Turn-Off Delay Time		t _{d(off)}	--	16	60	
Turn-Off Fall Time		t _f	--	10	25	
Input Capacitance	V _{DS} = 10V, V _{GS} = 0V, f = 1.0MHz	C _{iss}	--	450	--	pF
Output Capacitance		C _{oss}	--	70	--	
Reverse Transfer Capacitance		C _{rss}	--	43	--	
Source-Drain Diode						
Max. Diode Forward Current		I _S	--	--	1.6	A
Diode Forward Voltage	I _S = 1.0A, V _{GS} = 0V	V _{SD}	--	0.75	1.2	V

Note : pulse test: pulse width $\leq 300\mu S$, duty cycle $\leq 2\%$

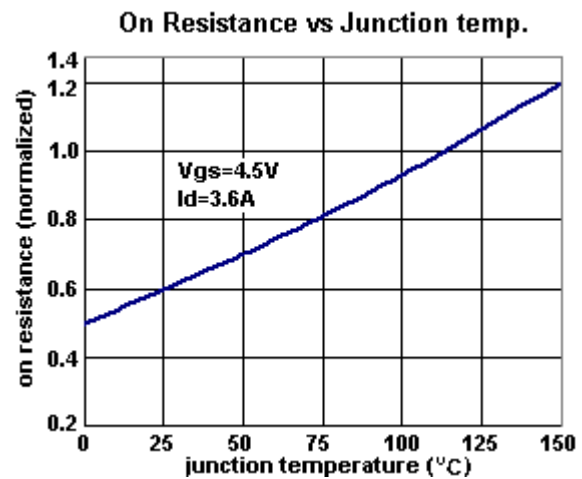
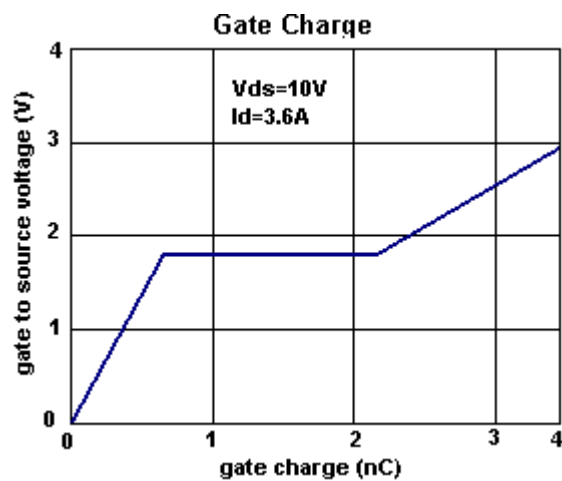
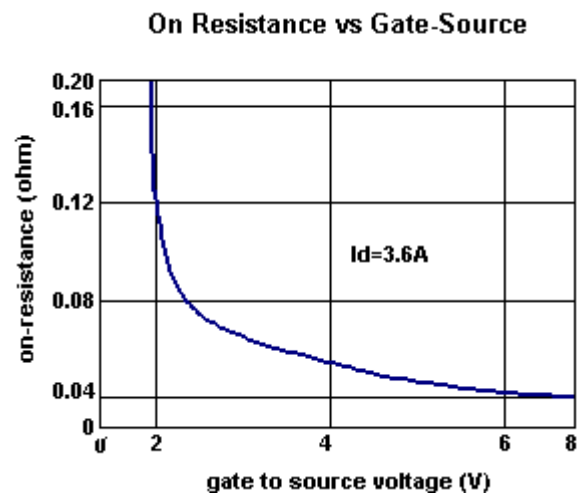
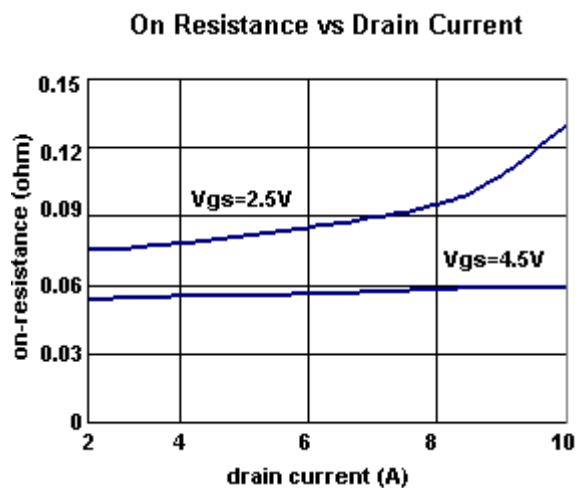
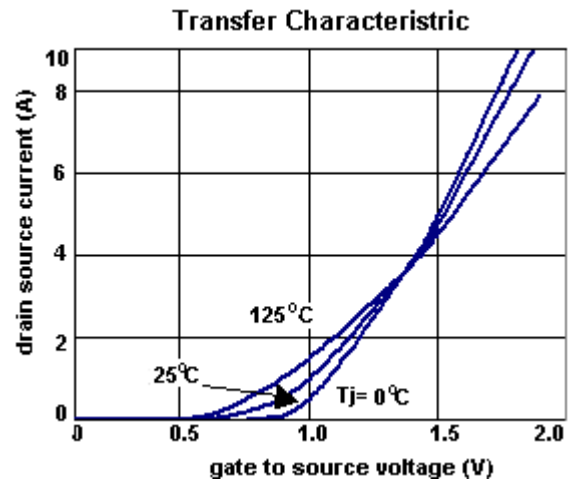
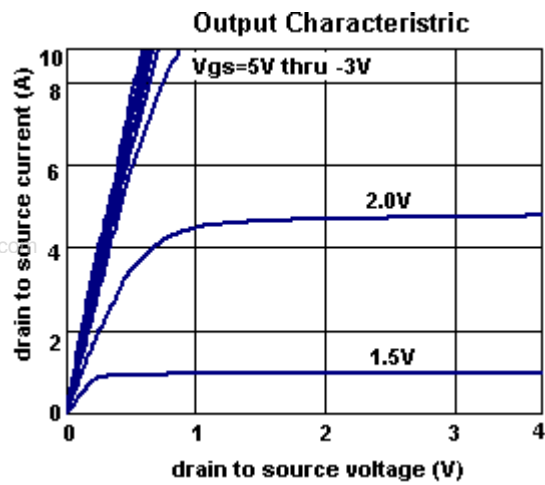


Switching Test Circuit

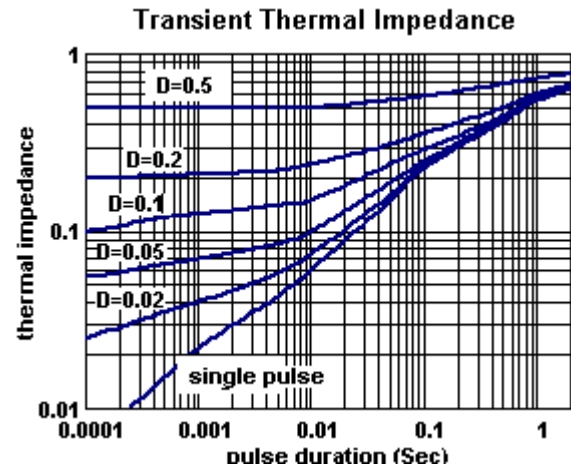
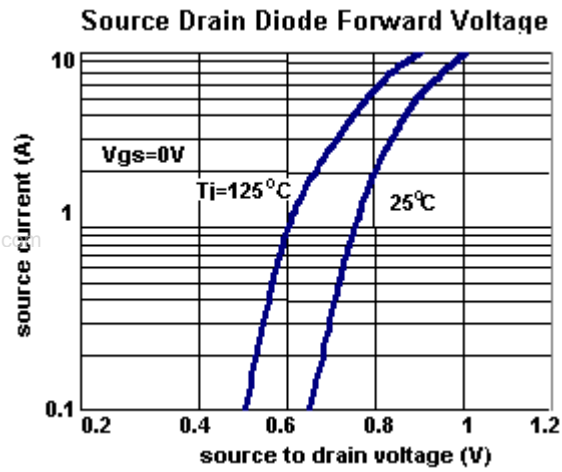


Switchin Waveforms

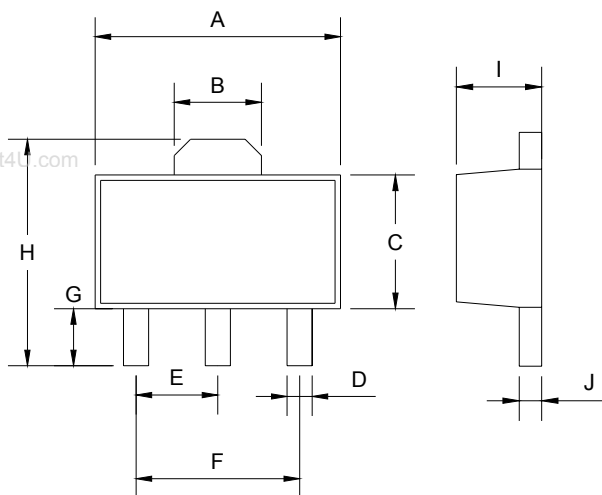
Typical Characteristics Curve ($T_a = 25^\circ\text{C}$ unless otherwise noted)



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SOT-89 Mechanical Drawing



SOT-89 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.40	4.60	0.173	0.181
B	1.50	1.7	0.059	0.070
C	2.30	2.60	0.090	0.102
D	0.40	0.52	0.016	0.020
E	1.50	1.50	0.059	0.059
F	3.00	3.00	0.118	0.118
G	0.89	1.20	0.035	0.047
H	4.05	4.25	0.159	0.167
I	1.4	1.6	0.055	0.068
J	0.35	0.44	0.014	0.017