

GENERAL FEATURES

● N-Channel

- $V_{DS} = 20V, I_D = 3.5A$
- $R_{DS(ON)} < 60m\Omega @ V_{GS}=4.5V$
- $R_{DS(ON)} < 90m\Omega @ V_{GS}=2.5V$
- $R_{DS(ON)} < 150m\Omega @ V_{GS}=1.8V$

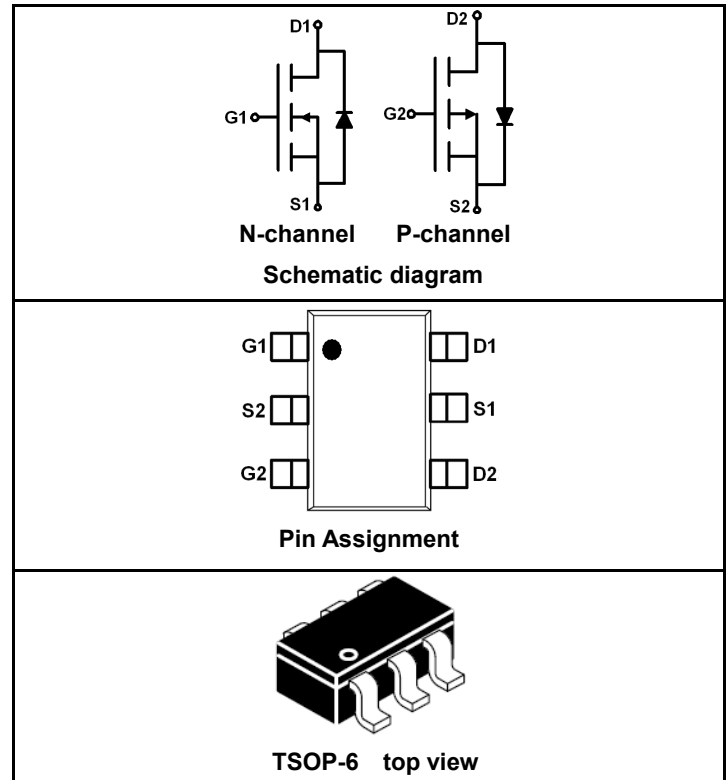
● P-Channel

- $V_{DS} = -20V, I_D = -2.7A$
- $R_{DS(ON)} < 110m\Omega @ V_{GS}=-4.5V$
- $R_{DS(ON)} < 145m\Omega @ V_{GS}=-2.5V$
- $R_{DS(ON)} < 220m\Omega @ V_{GS}=-1.8V$

- High Power and current handling capability
- Lead free product is acquired
- Surface Mount Package

Application

- DC-DC Conversion Circuits
- Load/Power Switching with Level Shift



PACKAGE MARKING AND ORDERING INFORMATION

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
2783	SSF2783	TSOP-6	—	—	—

ABSOLUTE MAXIMUM RATINGS(TA=25°C unless otherwise noted)

Parameter		Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage		V_{DS}	20	-20	V
Gate-Source Voltage		V_{GS}	±8	±8	V
Continuous Drain Current	$T_A=25^\circ C$	I_D	3.5	-2.7	A
	$T_A=70^\circ C$		2.4	-1.8	
Pulsed Drain Current (Note 1)		I_{DM}	11	-8	A
Maximum Power Dissipation	$T_A=25^\circ C$	P_D	1.1	1.1	W
	$T_A=70^\circ C$		0.6	0.6	
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 To 150	-55 To 150	°C

THERMAL CHARACTERISTICS

Parameter	Symbol	N-Ch	P-Ch	Unit
Thermal Resistance, Junction-to-Ambient (Note2)	$R_{\theta JA}$	87	87	°C/W

ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit	
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	N-Ch	20		V	
		V _{GS} =0V, I _D =-250μA	P-Ch	-20			
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	N-Ch		1	μA	
		V _{DS} =-20V, V _{GS} =0V	P-Ch		-1		
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V	N-Ch		±100	nA	
			P-Ch		±100		
ON CHARACTERISTICS (Note 3)							
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	N-Ch	0.6	1	V	
		V _{DS} =V _{GS} , I _D =-250μA	P-Ch	-0.6	-1		
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =3.5A	N-Ch		41	mΩ	
		V _{GS} =-4.5V, I _D =-2.7A	P-Ch		83		
		V _{GS} =2.5V, I _D =2.9A	N-Ch		51		90
		V _{GS} =-2.5V, I _D =-2.4A	P-Ch		110		145
		V _{GS} =1.8V, I _D =2.2A	N-Ch		67		150
		V _{GS} =-1.8V, I _D =-1.9A	P-Ch		140		220
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =3.5A	N-Ch		10	S	
		V _{DS} =-10V, I _D =-2.7A	P-Ch		9		
SWITCHING CHARACTERISTICS (Note 4)							
Turn-on Delay Time	t _{d(on)}	N-Ch V _{DD} =10V, I _D =1A V _{GEN} =4.5V, R _{GEN} =6Ω	N-Ch		6.5	nS	
			P-Ch		10		
Turn-on Rise Time	t _r		N-Ch		4	nS	
			P-Ch		6		
Turn-Off Delay Time	t _{d(off)}		P-Ch V _{DD} =-10V, I _D =-1A V _{GEN} =-4.5V, R _{GEN} =6Ω	N-Ch		16	nS
				P-Ch		33	
Turn-Off Fall Time	t _f	N-Ch			3	nS	
		P-Ch			29		
DYNAMIC CHARACTERISTICS (Note4)							
Input Capacitance	C _{iss}	N-Ch V _{DS} =10V, V _{GS} =0V, F=1.0MHz		N-Ch		380	PF
			P-Ch		500		
Output Capacitance	C _{oss}		N-Ch		70	PF	
			P-Ch		80		
Reverse Transfer Capacitance	C _{rss}		P-Ch V _{DS} =10V, V _{GS} =0V, F=1.0MHz	N-Ch		40	PF
				P-Ch		45	
SWITCHING CHARACTERISTICS (Note 4)							

Total Gate Charge	Q_g	N-Ch $V_{DS}=10V, I_D=2A,$ $V_{GS}=4.5V$ P-Ch $V_{DS}=-10V, I_D=-1A,$ $V_{GS}=-4.5V$	N-Ch		4.6		nC
			P-Ch		6		
Gate-Source Charge	Q_{gs}		N-Ch		0.9		nC
			P-Ch		1.1		
Gate-Drain Charge	Q_{gd}	N-Ch		0.8		nC	
		P-Ch		1.2			
DRAIN-SOURCE DIODE CHARACTERISTICS							
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_S=0.8A$	N-Ch		0.7	1.2	V
		$V_{GS}=0V, I_S=-0.8A$	P-Ch		-0.7	-1.2	V

NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

N-Channel THERMAL CHARACTERISTICS

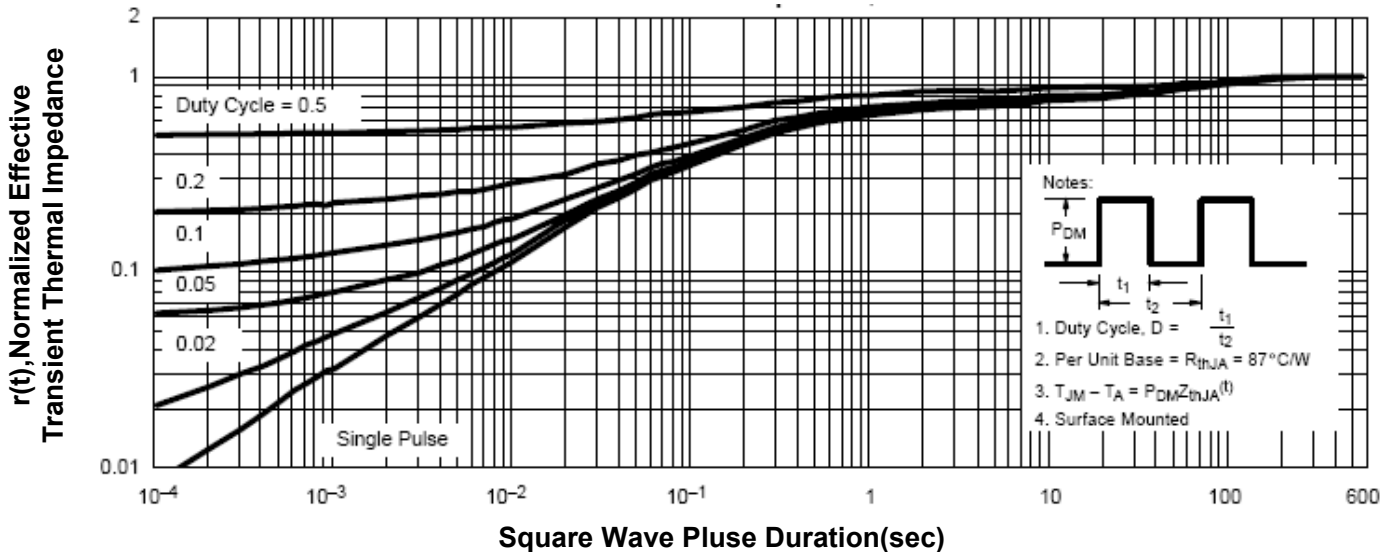


Figure 1: Normalized Maximum Transient Thermal Impedance

P-Channel THERMAL CHARACTERISTICS

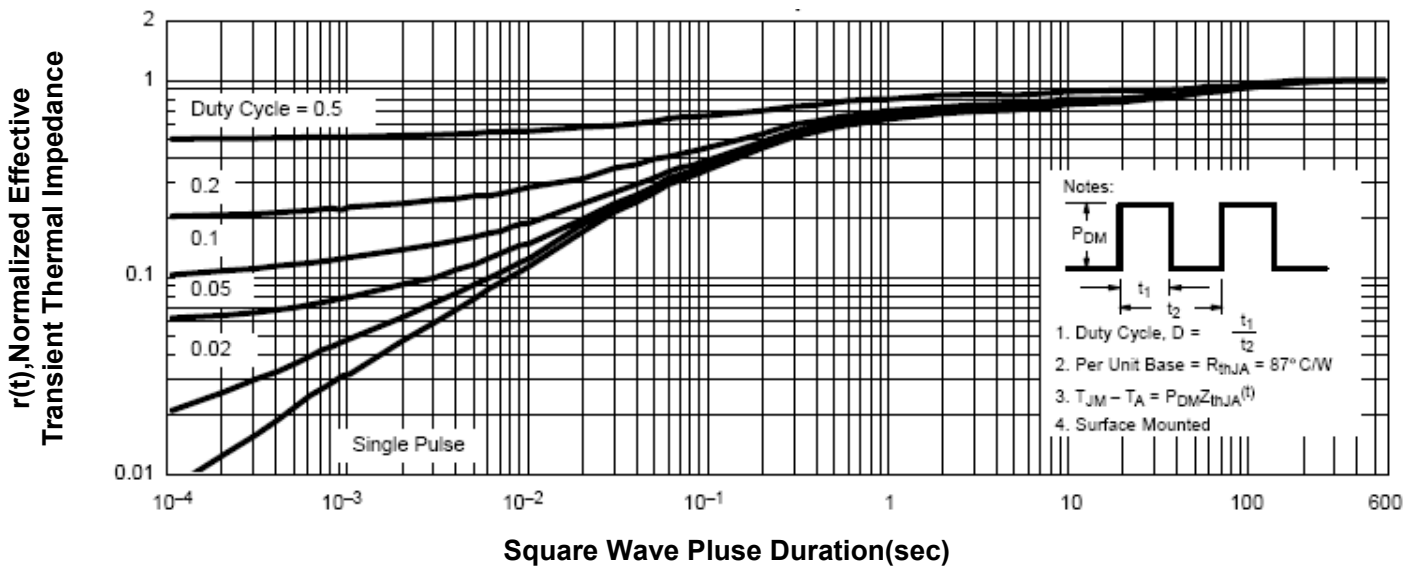
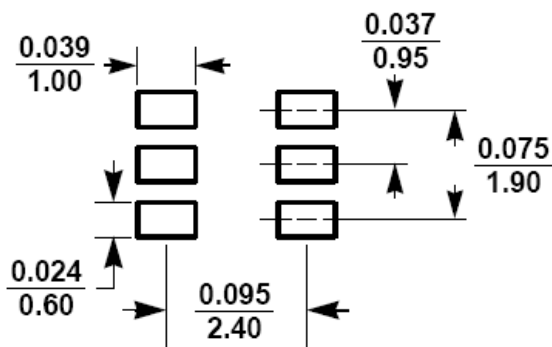
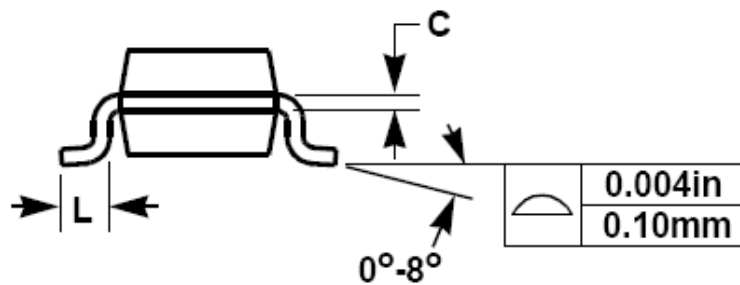
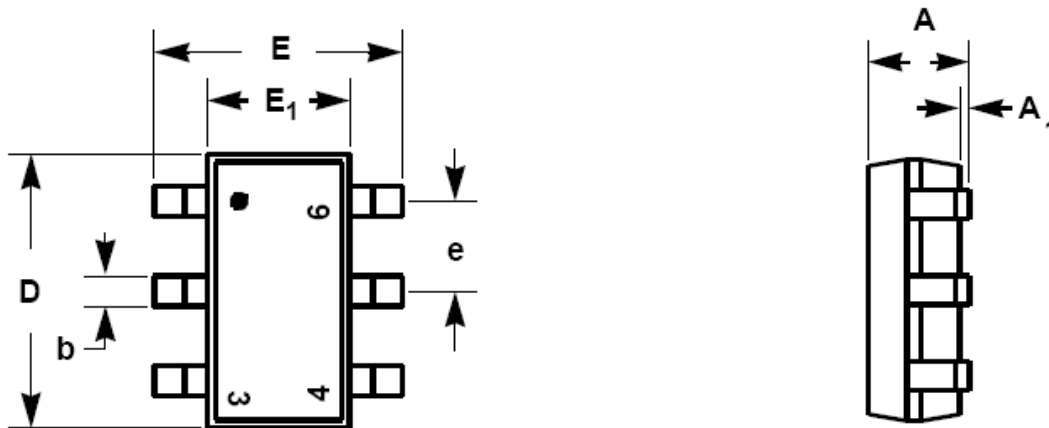


Figure 2: Normalized Maximum Transient Thermal Impedance

TSOP-6 PACKAGE INFORMATION



SYMBOL	Millimeters	
	MIN	MAX
A	0.90	1.10
A1	0.10	
b	0.30	0.50
c	0.08	0.20
D	2.70	3.10
E	2.60	3.00
E1	1.40	1.80
e	0.95 BSC	
L	0.35	0.55

NOTES:

- Dimensions are inclusive of plating
- Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 6 mils.
- Dimension L is measured in gauge plane.
- Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

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